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J. W. DOUGLAS.

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R. McLACHLAN, F.L.S.

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VOL. XI.

*"Omnium rerum principia parva sunt, sed suis progressionibus
usa, augentur."*—CICERO.

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THE

Entomologist's Monthly Magazine

VOLUME XI.

After ten years' editorial connection with this Magazine, the present seems a fitting time for my withdrawal. For some time past, increasing professional duties have prevented me from taking that active part in the conduct of affairs which is clearly due from an Editor. In justice, therefore, to our supporters, to my colleagues, and to myself, I consider that the best thing to do under the circumstances is to resign; and I do so, not only without reluctance, but with extreme pleasure, because, before taking this step, I am assured that a substitute for me has been found in our friend DOUGLAS (in himself a world of insect-lore), who has consented to accept my duties and responsibilities: such an acquisition to the staff *must* meet with approval from all, as it is a guarantee that the Magazine will increase in value and interest. I need hardly add, that the Entomologist's Monthly Magazine will always have, as it has hitherto had, my heartiest wishes for its success.

H. GUARD KNAGGS.

Kentish Town, N.W.:
May, 1874.

The unavoidable retirement of my friend Dr. KNAGGS having caused a vacancy in the joint Editorship of this Magazine, and it having been represented to me that I could not better serve the cause of Entomology than by taking his place, I cannot resist the solicitations of my friends to occupy the position of a member of the quadruple alliance. Like Cincinnatus, I had retired from active duty; recalled, I return to it, not like him as a dictator, but as a co-worker in the field I love,—*corde et manu*.

J. W. DOUGLAS.

15, Belgrave Terrace, Lee, S.E.:
May, 1874.

DESCRIPTIONS OF SOME NEW SPECIES OF THE GENUS
PACHYTRICHA.

BY D. SHARP, M.B.

Among the many interesting and anomalous genera of *Coleoptera* that inhabit Australia, the genus *Pachytricha* is probably one of the most remarkable. Its satisfactory classification is a difficult point, and I think must yet remain so. Hope considered the genus allied to *Glaphyrus* and *Chasmatopterus*; Erichson considered it to be an ally of *Euchirus*, but afterwards changed this opinion, and placed *Pachytricha* among the group of Sericoid *Melolonthæ*, of which numerous genera are found in Australia, one or two in Western South America, one or two in New Zealand, and one in Europe. This group of Sericoid *Melolonthæ*, as established by Erichson, and adopted by Lacordaire, consists of a series of genera differing greatly one from another, and the association of which in one group does not satisfactorily express their differences and affinities. It must be admitted that *Pachytricha* in its general appearance, and in numerous points of its structure, differs much from all the other genera of the group; and, if we bear this in mind, and recollect also, that the other genera to which it has affinities, viz., *Glaphyrus* and *Euchirus*, are also very anomalous, and of difficult classification, I think we are warranted in concluding that we are here dealing with a genus which is less specialized than most of the other genera of Lamellicorn *Coleoptera*, and one therefore which is, perhaps, the little changed descendant of one of the more primitive forms of the family *Scarabæidæ*.

I have examined the position of the abdominal stigmata in the species characterized *infra* as *P. minor*, and adjoin their description, as well as some points that have escaped observation in the anatomy of the genus.

Abdominal stigmata two, three, and four, similar in shape to one another, moderately large, very open, elliptical, stigma three rather larger than two or four. Stigmata two and three placed partly in the connecting membrane, and partly in the horny portion of the abdomen; stigma four placed just in the horny portion close to the membrane; stigma five placed also close to membrane, its position being similar to that of the fourth stigma, but it is smaller than that, though it is large and open. Stigma six is small and closed, scarcely quite so near the membrane as the fifth stigma, but yet very little distant therefrom. Stigma seven small, placed close to junction of the dorsal and ventral plates.

Prosternum furnished with an elongate narrow post-coxal process, which is extremely densely clothed with very long hairs.

Mesosternum produced between the middle coxæ, these placed closed to one another, and separated only by a thin lamina.

Posterior coxæ broader externally than internally; their upper margin oblique in its direction, their outer and hinder angles acute.

I have been so fortunate as to accumulate from different sources nine individuals possessing the characters of the genus; and, after carefully examining them, have concluded that these individuals are representatives of five different species; it appears, moreover, to me that none of these specimens can be referred to *P. castanea*, Hope, the only species of the genus hitherto described; I have, therefore, drawn up descriptions of these insects, and, in order to make the paper more complete, have copied and added to it the description of *P. castanea*.

These six species may be arranged in two sections, readily distinguished by the structure of the labrum, and which (if connecting links be not discovered) will, perhaps, ultimately be adopted as distinct genera.

SECTION I.

Labrum profunde (sed haud usque ad clypei marginem) emarginatum.

1. *PACHYTRICHA MUNDA*, sp. n.

Nigro-picea, suprâ nitida, infrâ dense pallide lanosa, elytris testaceis, antennis rufescentibus, prothorace dense punctato; tibiis posterioribus in utroque sexû minus incrassatis.

Long. corp. 14 lin.

♂. *tarsis anterioribus, long. 6 lin.*

♀. *tarsis anterioribus, long. 3½ lin.*

Head pitchy-black, densely punctured. Thorax pitchy-black, shining, the sides densely punctured, the punctures being confluent and rugose; the front part is closely punctured, the back part more sparingly and indistinctly punctured; its breadth is nearly one and a half times its length, it has no hairs on its upper surface: scutellum pitchy-black, indistinctly punctured. Elytra testaceous, smooth and shining, without distinct punctuation. Pygidium pitchy, without hairs. Under-side of the body quite woolly, being densely clothed with pale, soft, long pubescence. The last segment of the abdomen without pale hairs. Legs pitchy-black.

This species has been sent from Swan River by Mr. Brewer.

The two specimens of it before me differ from one another in several respects, and some of these differences are no doubt sexual. In the specimen which I believe to be the male, the legs are longer than in the other, the difference being most notable in the front tarsi, and the three teeth on the front tibiæ are less developed. The

pygidium is more deflexed, and the apical segment of the abdomen is smooth and shining in the middle, while in the female it is finely punctured, each puncture bearing a fine yellow hair.

2. *PACHYTRICHA PALLENS*, *sp. n.*

Nigro-picea, suprà nitida, infrà dense pallide lanosa, elytris testaceis, antennis rufescentibus, prothorace dense punctato.

Long. corp. 14 lin.

♂. *tarsis anterioribus, long. 5½ lin.*

♀. *adhuc incognita.*

The only individual of this species before me evidently belongs to the male sex; it is extremely similar to the male of *P. munda*, and differs from it as follows: it is a little narrower, and the elytra are shorter and more convex, the legs are more slender and a little shorter, the teeth on the front tibiæ are less developed, and the claws are notably smaller. The wool of the under-surface is not so long, and the abdomen is evidently more sparingly clothed.

North-West Australia: Mr. Du Boulay.

3. *PACHYTRICHA ROBUSTA*, *sp. n.*

Picea, suprà nitida, infrà dense pallide lanosa, elytris castaneis, antennis rufescentibus, prothorace lateribus dense punctato.

Long. corp. 17 lin.

Of this very fine species I have but a single mutilated specimen before me; this individual, though it has lost all its tarsi, and the club of its antennæ, is, I think, a female, and there can be no doubt of its being a distinct species from *P. munda*. It is much larger, notably broader and more robust than that species, the punctuation of its thorax is not so dense, the punctures not being confluent except at the front angles, the labrum is longer and more prominent, the elytra are not so smooth, and are darker in colour, the pygidium is broader, and has a deep impression at its extremity, the hind tibiæ are more dilated at their extremity, the last segment of the abdomen is much broader and less conical in form; and the fourth and fifth joints of the antennæ are much longer than in *P. munda*. This character will probably offer an easy means of distinguishing the two species; for in *P. munda* the fourth joint is only about as long as it is broad, while in *P. robusta* it is much longer.

This specimen was named *Pachytricha castanea* in the collection of Mr. W. W. Saunders; but I find that it does not agree with Westwood's figure (Trans. Ent. Soc., iii, pl. xiii, f. 4), and is, I have no

doubt, a different species (I should judge Westwood's figure to represent a female). The only locality indicated for the specimen of *P. robusta* was "West Australia."

4. *PACHYTRICHA CASTANEA*, Hope (Trans. Ent. Soc. Lond., iii, p. 282, pl. xiii, f. 4).

"*Piceus, capite valde acuminato seu melius sub-cornuto. Thorax antice utrinque spinosus, marginibus elevatis et punctatis. Scutellum læve, postice rotundatum, piceum. Elytra castanea, postice acuminata, podice triangulo deflexo brunneo. Corpus infrà valde pilosum; capillis cinerascentibus. Pedes picei et ciliati.*"

"Long. lin. 15, lat. lin. $5\frac{1}{2}$."

"*Habitat in Novâ Hollandiâ.*"

"This remarkable insect is from Australia, and appears to be a genus intermediate between *Glaphyrus* and *Chasmatopterus*."

SECTION II.

Labrum omnino fissum.

5. *PACHYTRICHA TECTA*, sp. n.

Castanea, nitida, capite pedibusque piceis; prothoracis lateribus et parte anteriore fortiter punctatis, hoc etiam hirsuto; tibiis posterioribus apice fortiter dilatatis.

Long. 16 lin., lat $7\frac{1}{4}$ lin.

Head pitchy, rather coarsely and closely punctured, with a space in the middle less punctured. Thorax shining, coarsely and rather closely punctured, except a large space behind, which is nearly impunctate; the front part is clothed with rather long and scanty hairs. Elytra chestnut-yellow, very shining, and very nearly impunctate. Pygidium extremely finely punctured. Under-side densely clothed with woolly pubescence, except that the three or four apical segments of the abdomen are bare. Legs pitchy, the teeth of the front tibiæ much developed, hinder tibiæ strongly dilated at the extremity.

Of this species I have before me three specimens from Freemantle; they present no evident sexual distinctions, and I suspect them to be all females. I have also another specimen, coming, I believe, from the more northern parts of Australia, which is considerably smaller and narrower than the Freemantle individuals, and has the tibiæ not quite so stout: whether it be the male of *P. tecta*, or only a small individual of the female sex thereof, I am unable to say.

6. *PACHYTRICHA MINOR*, sp. n.

Suprà castanea, subtus picea, sed dense lanosa, pedibus piceis; prothorace æqualiter subtiliterque punctato, elytris obsolete punctatis, pygidio crebre asperato-punctato.

Long. 12 lin., lat. $5\frac{3}{4}$ lin.

Head darker and more distinctly punctured than the rest of the upper-surface, with the line separating the clypeus from the front very distinct. Thorax of a chestnut colour, shining, rather finely and evenly punctured, the punctures, however, rather coarser, and more numerous at the sides and front angles than elsewhere; it is about one-third broader than long. Scutellum distinctly punctured, but with the sides and apex smooth. Elytra obsoletely punctured, the punctuation near the scutellum more distinct than elsewhere. Pygidium closely punctured, and furnished with fine hairs. Under surface with a thick woolly pubescence, except on the middle of the abdomen, where there is only a scanty pubescence. Legs pitchy, hinder tibiae moderately dilated at the extremity.

I have seen only a single specimen of this insect, which comes from North-West Australia; its rough pygidium readily distinguishes it from the other species.

Thornhill, Dumfries:

26th March, 1874.

DESCRIPTIONS OF FIVE NEW LUCANOID COLEOPTERA.

BY CHAS. O. WATERHOUSE.

1. PRISMOGNATHUS (*Cyclorasis*) ANGULARIS, *sp. n.*

♀. *Niger, nitidus. Capite pone oculos vix angustiore. Thorace sat crebre fortiter punctato, angulis anticis prominentibus. Elytris crebre sat fortiter irregulariter punctatis, lateribus subtilius obsolete punctulatis.*

Long. 9 lin.

Closely allied to *P. platycephalus*, the head is, however, somewhat narrower; the neck being as it were swollen, the eyes are much less prominent than in that species, and the punctuation throughout is more distinct. The thorax is narrower, the anterior angles are very prominent, and the sides in front are less oblique; the punctuation is moderately close and strong. The elytra present some indications of longitudinal impressed lines; the punctuation is moderately strong and close, and somewhat irregular, considerably less close and distinct than in *P. platycephalus*, and the sides are slightly opaque, obscurely and very finely punctured.

Hab. Japan.

Unique in coll. G. Lewis.

2. DORCUS BINODULOSUS, *sp. n.*

♂. *D. Dehaanii affinis; niger, subdepressus. Mandibulis capite vix longioribus, arcuatis, apicibus acutis, ad basin suprâ dente triangulari retrorsum directo. Capite sub-plano subtilissime granuloso punctis aspersis, genis pone oculos rectangularibus. Thorace depresso sub-*

tilissime granuloso, lateribus marginibusque fortiter punctatis. Elytris sat nitidis, dorso distincte subtiliter striato-punctatis, interstitiis 1 et 3 vix punctulatis; lateribus, basi, apiceque crebre fortiter punctatis.

Long. 15 lin., mandib. 2½ lin.

This species is closely allied to *Dorcus Dehaanii*. As I have seen but a single example, it is impossible to give characters which will separate its larger developments from the allied species; the presence, however, of two very small tubercles on the forehead (which are separated from each other by a space a little greater than the width of the clypeus) will distinguish it from any specimen of the allied species which I have seen; the cheeks behind the eyes being prominent and rectangular, and the elytra punctured in striæ will also serve as distinctive characters.

Hab. Japan.

Coll. G. Lewis.

3. FIGULUS INTERRUPTUS, *sp. n.*

Niger, nitidus. Oculorum cantho antice vix angulato. Thorace longitudine ¼-latiore, antice unituberculato, dorso lævi, longitudinaliter fortiter canaliculato, latera versus sat crebre punctato, lateribus subparallelis, angulis posticis late rotundatis.

Long. 5 lin.

Somewhat resembles *F. lævipennis*, but by the form of the thorax belongs more to the second section of the genus. Head with the forehead concave, sparingly punctured, with four small tubercles, the posterior ones being very obscure; the canthus is scarcely angular in front, slightly rounded at the sides. The thorax is one-fourth broader than long, convex, shining, moderately thickly punctured towards the sides, the anterior margin with a distinct tubercle; the longitudinal channel is deep, and sparingly and obscurely punctured; the anterior angles are scarcely at all prominent, the sides are scarcely rounded, the posterior angles are much rounded. The elytra are convex, impressed on each side of the suture, twice the length of, but scarcely as broad as, the thorax; the striæ are nine in number, the second to fifth are strongly impressed at the base, gradually becoming less so towards the apex (which is smooth), and the punctures more apparent; the sixth (humeral) stria is lightly impressed at the base, and somewhat strongly so posteriorly; the seventh to ninth striæ are lightly impressed, distinctly and not very strongly punctured.

Hab. India.

Coll. Brit. Mus.

4. FIGULUS NITENS, *sp. n.*

Niger, nitidus. Capite fere lævi, antice rufescenti, oculorum cantho rotundato. Thorace longitudine ½-latiore, latera versus crebre punctulato, antice uninoduloso, in medio et utrinque inter puncta foveis tribus impresso; angulis anticis prominulis, lateribus parallelis; angulis posticis rotundatis. Elytris striis novem, 2-6 fortiter impressis, 7-9 vix impressis, punctulatis.

Long. 5½ lin.

Allied to *F. Manillarum*, but narrower, with less punctures on the thorax, and the ocular canthus rounded. Head almost invisibly and sparingly punctured; forehead concave with an obtuse tubercle on each side; the ocular canthus rounded. The thorax is convex, shining; the disc sparingly and extremely delicately punctured, towards the sides moderately thickly and strongly punctured, with a strongly punctured impression in the middle, and on each side there is a shallow impression among the lateral punctuation; the anterior angles are very slightly prominent and obtuse; the sides are nearly parallel, only very slightly narrowed posteriorly; the hind angles are rounded. Elytra a trifle narrower than, and twice as long as, the thorax, the striæ are nine in number, the second to sixth are strongly impressed (except at the extreme apex), the fifth and sixth only visibly punctured, the interstices are gently convex, moderately thickly but not strongly punctured; the seventh to ninth striæ are scarcely impressed, distinctly but not very thickly punctured.

Hab. New South Wales.

Coll. Major Parry.

5. MITOPHYLLUS MARMORATUS, *sp. n.*

Niger, brunneo-variegatus, plumbeo-micans, squamulis flavis marmoratus; thorace lateribus pone medium angulatis, dein leviter emarginatis, angulis posticis rectis. Elytris fortiter irregulariter punctatis.

Long. 7 lin.

Closely resembles *M. Parrianus*, but easily separated from it by its being more convex than that species, and by the sides of the thorax behind the middle being gently emarginate, thus making the posterior angles rectangular. The thorax is thickly and very strongly punctured, with three smooth spots, two on the disc and one in the middle of the posterior margin; the anterior angles are very slightly prominent, the sides are strongly angular rather behind the middle. The elytra are scarcely broader than the widest part of the thorax, conjointly rounded at the apex, the punctuation is very strong and moderately close, but somewhat irregular; the yellowish scales, with which the insect is more or less covered, are shorter and broader than those in the allied species, and appear to be confined to the brown portions of the insect, leaving the blacker parts bare.

The male has the mandibles black, swollen at the base, with a deep reddish impression above, furnished also above near the apex with a strong tooth. The head is straight in front, with a strong tubercular projection in front of the eyes. In the female, the head is longer and narrower, the eyes are smaller and less prominent, and the projection in front of the eyes is much less. The mandibles are much more straight and simple, the apices very acute, and the tubercle above is very small and acute.

Hab. New Zealand.

Coll. Brit. Mus.

British Museum: *May 7th*, 1874.

BRITISH HEMIPTERA—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

OCULATINA.

SALDIDÆ.

SALDA OPACULA.

Salda opacula, Zett., Ins. Lap. 268, 12, 8 (1840); Thoms., Opusc. iv, 407, 13 (1871); nec Fieb., Ent. Monats., vii, 62 (1863).

„ *costalis*, F. Sahlb., Geoc. Fenn., 152, 5 (1848); nec Thoms., Opusc. iv, 406, 10.

„ *marginalis*, H.-Schf., Wanz., ix, 130, t. 306, fig. 943 (*marginella* in tab.) (1833); nec Fall., Flor. Stål; nec *S. marginella*, Fieb., Eur. Hem., 145, 8.

Oval, black, with very short, fine, golden, silky pubescence. *Pronotum*—sides straight. *Elytra* dull; anterior margin regularly and narrowly testaceous throughout, except at the base; disc with long testaceous streaks, often obscure, and a posterior whitish spot.

Head shining; *clypeus*—margin much incrassated towards the sides, whitish; *face* whitish; *eyes* brown, large, much divergent posteriorly. *Antennæ* black, 1st joint broadly testaceous on the inner side. *Rostrum* piceous.

Thorax: *pronotum* shining, trapeziform, sides straight, flattened, anterior callus large, convex, with one small, deep, central fovea, the adjoining posterior furrow deep. *Scutellum* shining, spotless, a large wide fovea on the basal portion. *Elytra* dull; *clavus*—posteriorly with an elongate testaceous spot; *corium*—anterior margin flatly reflexed, especially at the base, and except the basal third and extreme apex, regularly linear-testaceous; exterior to the black middle nerve the colour is broadly irregularly testaceous, becoming narrow posteriorly, where, on the exterior black area is a distinct, elongate, whitish spot; beyond the nerve the colour is again broadly testaceous, interrupted in the middle, the basal part having a black, isolated dash giving the appearance of an ocellus, the posterior part clear; more inwardly is a slender, sinuate, testaceous line not extending to base or apex, followed by a spot of the same colour, and another similar spot is on the inner posterior angle: some or all of the markings on the inner half of the corium are sometimes obliterated; *membrane* testaceous with black nerves, and sometimes a small black spot between them. *Legs* testaceous; *thighs* internally with darker spots; *tibiæ* base and apex, *tarsi*, last joint, black.

Abdomen black, shining, with golden pubescence, the posterior margin of the last three or four segments pale testaceous. Length, 1½ lines.

Several examples taken by Dr. F. Buchanan White, at Braemar, in 1871.

S. opacula, Zett., is erroneously cited as a synonym of *S. marginalis*, Fall., by Fieber, *l. c.*, by D. and S., Brit. Hem., i, 524, 6, and Stål, (Ef. Vet. Ak. Förh., 391, 8 (1868).

S. marginalis, Fall., is distinguished by its more ovate form, and specially by the hamate mark on the inner side of the less regular pale margin of the elytra, as described in the "Brit. Hem.," l. c. In *S. opacula*, Zett., the yellow colour of the margin of the elytra is linear throughout.

SALDA PALUSTRIS, n. sp.

Broad-oval, deep black, finely punctate, densely clothed with decumbent black hairs mixed with delicate, short, golden pubescence. *Antennæ* black, 1st joint testaceous with brown or blackish spots, or externally black; 2nd, testaceous towards the apex. *Pronotum*—sides slightly rounded. *Elytra* dull; *clavus* with a spot towards the apex; *corium*, anterior margin in the middle with a long line followed by a shorter one, two spots on the disc, and one in the posterior inner angle, the middle nerve with a line on each side, the ocellate spot indistinct,—all pale ochreous. *Legs* testaceous; *thighs* black beneath, brown-spotted inside; *tibiæ*—outwardly with a black line.

Head shining; *clypeus* margin slightly incrassated, mostly testaceous; *face* testaceous, thickly clothed with golden hairs. *Antennæ* black; 1st joint testaceous, externally black (♂), or with blackish or brown cloudy spots (♀). *Rostrum* piceous.

Thorax: *pronotum* shining; sides slightly rounded; anterior callus moderate, with one central fovea, and in front and behind a row of close, deep punctures. *Scutellum* with a sub-basal and a posterior depression, posterior portion crenulate. *Elytra*: *clavus* shining, a small spot towards the apex; *corium* dull, the black decumbent hairs giving a rastrate appearance, anterior margin at the base flattened, crenate, in the middle a long narrow line followed by a short one not extending to the apex, the two being often connected by a still finer marginal line; on the disc nearly opposite the lower end of the long line is a longish spot, and posterior to it a small one; in the posterior inner angle an oblique spot; the usual ocellate ring faint and imperfect; the middle nerve bordered, externally throughout by a very fine line, internally by a short broad one reaching to the posterior margin—all these markings pale ochreous; *membrane* pale ochreous, nerves strong, black, a long fuscous spot in each cell, margin tinged with fuscous, but at the base, externally and internally, for some distance either wholly black, or with a basal pale line or spot. *Legs* testaceous, with black hairs and spines; *thighs* beneath with a black line, inner side with brown spots; *tibiæ* outwardly with a black line from the base, short and spot-like in the third pair, apex black or blackish, spines on the third pair longer and stronger; *tarsi*, last joint with the apical fourth black.

Abdomen—beneath shining, densely clothed with pale golden or silvery pubescence.

Length, $1\frac{1}{4}$ — $1\frac{3}{4}$ line.

Some examples are almost wholly black, but the pale, narrow marginal and middle lines of the *corium* are always more or less visible.

The species belongs to the *saltatoria* group, but cannot be cannot be confounded with any other. It has been seen by Drs. Fieber, Stål, J. Sahlberg, and O. Reuter, and is new to them.

I took one specimen on the shore at Southampton in September, 1863, and one at Bascombe Chine, near Bournemouth, in September, 1871 (E. M. M., viii, 137), and several were captured last autumn in a marsh at Hythe, near Southampton Water, among *Spartina striata*, by Mr. R. G. Keely, and kindly forwarded.

SALDA VESTITA, n. sp.

Broad-oval, brown-black, dull, densely clothed with fine, short, golden pubescence, and destitute of black hairs. *Antennæ* black, 1st joint testaceous, on the upper-side black; 2nd testaceous, more or less obscured. *Pronotum*—sides slightly rounded. *Clavus* with a posterior pale spot; *corium* at the base black, then, on the outer side, broadly ochreous, with a central irregular black spot, the light colour then narrow on the margin and again expanding as a long spot, interior to this a rounded pale spot; middle nerve black, posteriorly margined on each side with ochreous, a small spot at the inner angle, and one or two inwardly on the disc; *membrane* pale ochreous; nerves, a spot in each cell, and a large one near the apex of the outer cell, black. *Legs* testaceous, with dark lines and spots.

Head: *clypeus*—margin very slightly incrassated, ochreous or testaceous; *face* testaceous. *Antennæ* black, first joint testaceous, upper-side with a more or less distinct black line; second obscure testaceous, the basal two-thirds mostly blackish. *Eyes*, black clouded with brown. *Rostrum* testaceous or piceous.

Thorax: *pronotum*—sides slightly rounded, margin narrowly flattened, scarcely reflexed; anterior callus moderate, with one deep, central fovea. *Scutellum* finely punctured, sub-basal depression wide and deep, posterior half crenulate, the depression slight. *Elytra*: *clavus*—posteriorly with a longish, pointed, ochreous spot, mostly also with a narrow linear spot on the posterior margin; *corium*—anterior margin on the first half flattened, slightly reflexed, basal fourth black, then (except on the extreme edge) for more than one-third of the length ochreous, the colour extending inwards to the black middle nerve, and enclosing an irregular black spot, then continued (as a rule) narrowly on the margin, and widened into a quadrangular spot which does not reach the apex; on the disc opposite is an isolated, rounded, pale spot; middle nerve on the posterior half bordered on the outer-side narrowly, on the inner-side broadly, with ochreous; the usual ocellus distinct, its black centre long and narrow; between the ocellus and the clavus usually a short pale line, posteriorly on the disc two small, long spots, and one at the inner angle; posterior margin wholly black; *membrane* pale ochreous, nerves, and a long spot in each cell, black, margin outwardly shaded with fuscous, and, exterior to the lower end of the outer cell, a long

black spot. *Legs* testaceous, with black hairs; *thighs* broadly black beneath, sides with brown spots in a line; *tibiæ* black at base and apex, first and second pairs with a long, black line on the outside; third, with fine, projecting, black spines; *tarsi*, third joint black, but on the third pair, the posterior half only.

Abdomen black, with golden pubescence on the under-side, the posterior margin of the segments narrowly whitish. Length, ♂, $1\frac{3}{4}$, ♀, 2 lines.

Several examples taken by Dr. Power, on the shore of Loch Leven in August, 1869 and 1870, and some, in the collection of Mr. T. J. Bold, by Mr. Hardy, in the Tyneside district.

The species belongs to the *saltatoria* group, and in the large exterior pale marking of the elytra bears some resemblance to *S. stellata*, Curt., but the form of the insect is longer-oval, and it is distinguished at once by the dulness of its surface, due to the dense pubescence, which peculiarity Dr. Power tells me struck him when he first saw his captures in his sweeping-net.

(To be continued).

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from Vol. x., p. 247).

Carpocapsa juliana, Curt.—My friend Mr. H. Waring Kidd bred a specimen of this species a few years ago from the “artichoke” galls of the oak (galls of *Cynips quercus-gemmæ*), but I think that this situation had only been selected by the larva for the purpose of spinning up. There is no evidence to show that the moth is in any sense an inquiline of the galls.

Carpocapsa nimbana, H.-S.—This is considered by Prof. Zeller and Dr. Wocke as a variety of *juliana*, but Herrich-Schäffer and Heinemann describe it as distinct. It has not been introduced as a distinct species in the Ent. Annual, but is merely noticed (Ent. Ann., 1870, p. 131) as *juliana*, var. The only specimens obtained in this country (as far as I am aware) were bred by Lord Walsingham from larvæ found hibernating in cocoons under moss or *beech* trunks in Buckinghamshire. Now, as *juliana* appears to be confined to *oaks*, and is rather widely distributed in this country, there seems to be considerable evidence in favour of the distinctness of the two species; I therefore append a description of *nimbana*.

Alar. Exp. 7 lines.

Head and palpi grey; eyes black; antennæ and thorax dark grey; fore-wings slate colour to the middle, thence greyish-brown with scattered ochreous scales; dorsal

blotch white, triangular, extending not more than half across the wing; ocellus bounded by two broad steel-blue lines, and preceded by a black spot in the middle of the wing; costal streaks indistinct to the middle, distinct and white beyond; cilia shining, dark brown; hind wings purplish-grey; cilia whitish; abdomen iron-grey.

May be distinguished from *juliana* by the form of the fore-wings, which are rather more blunt at the apex than in that species, and by the short triangular dorsal blotch. In *juliana* this forms a long, curved triangle reaching nearly to the apex of the wing.

Carpocapsa splendana, Hübn.

Carpocapsa grossana, Haw.—According to my experience, this is a scarce species, certainly very far less common than *splendana*. If, as Wilkinson asserts, it is common among beeches, it must be in restricted localities.

Carpocapsa pomonella, Linn.—I see by a note in the "Zoological Record" that M. Laboulbène has stated in the Ann. Soc. Ent. France, that the larva of this species attacks *nuts*, and Mr. W. West, of Greenwich, tells me that he has reared the perfect insect from a larva which he found feeding in a walnut.

Carpocapsa funebrana, Tr.—M. Jourdheuille states in his calendar that there is a brood of the larva of this species in *May*, feeding in the *trunks* or stems—"tiges"—of plum. This mistake apparently arises from the fact that the larvæ remain unchanged in the cocoons which they construct in the crevices of the bark until the spring, remaining but two or three weeks in the pupa state.

He also says that *pomonella* has sometimes two broods, probably for a similar reason.

Grapholita albersana, Hübn.

Grapholita ulicetana, Haw.—Dr. Wocke substitutes *succedana*, Fröl. (the name by which it is generally known in Germany), but for what reason does not appear, Haworth's being decidedly the earlier name and entitled to precedence, unless, indeed, *asseclana*, Hübn., a still older name—which probably refers to this species—be adopted.

It varies much in different localities. The dull grey form so excessively abundant in this country, is comparatively scarce on the Continent, and, indeed, in many parts quite unknown, the species being represented by paler varieties. These also occur frequently in Norfolk in company with the grey form, and seem to become commoner in the north. In Lancashire, a handsomely marked whitish form, with rich

dark ocellus, occurs among *Genista anglica*, and is placed in some collections as a distinct species under the name of *asseclana*. The most brilliant specimen of this variety that I have seen was taken last summer on one of the Scottish mountains by Dr. F. Buchanan White. But for the connecting links, it would have been difficult to believe that this was the same species as our grey southern insect. On the Irish coast very large grey specimens occur, having also a peculiar appearance, and in some places there is a dwarf unicolorous grey race, but all seem to be united by intermediate variations in size and colour. The size seems to depend in some measure on the food-plant, the smallest form being found among *Lotus corniculatus*, where there is no furze, while there are some indications that colour is also affected by the same cause, the brighter varieties being found frequently among *Genista anglica*, *Spartium scoparium*, and *Lotus*.

To add to the confusion of synonyms in which this species is involved, the common grey form has been described by M. Constant (Ann. Soc. Ent. France, 1865) under the name of *micaceana*. Specimens sent me by Mr. E. L. Ragonot agree precisely with our insect.

Grapholita hypericana, Hübn.

Grapholita modestana, Wilk.—(*æmulana*, Schl.), already noticed in the genus *Catoptria* (Ent. Mo. Mag., Vol. x, p. 8).

Grapholita microgrammana, Gn.—Zeller says this flies among *Ononis*. It is still scarce in this country, but has been taken in Ireland by Mr. Birchall, at Folkestone, and a few specimens at Great Yarmouth on the sand-hills.

Grapholita Wimmerana, Wilk.—This appears to be distinct from *Wimmerana*, Treitschke, which is described by him as greyish-fuscous with *white* markings, and figured by Herrich-Schäffer of an olive-brown with long white costal streaks, and a distinct white ocellus. It is probable that both authors refer to the same species, but certainly not to ours, which has borne the name. Under these circumstances, Mr. Doubleday, in the last Supplement to his List, substituted Mr. Dale's MS. name, *maritimana*, and in this I should have followed him, but, in examining some types of Continental *Tortrices* received from Prof. Zeller, I find that the paler specimens of our insect agree precisely with types of *candidulana*, Nolck. This name must therefore be adopted, there being no figure or description published of *maritimana*, Dale.

Wilkinson's description is so good that nothing need be added to

it, except that the colour is not so constant as he represents, there being considerable variation in the depth of the drab clouds and fuscous markings. Some examples taken by Mr. Howard Vaughan are nearly white. It is very possible that this variety may have been called *lacteana*, Tr., by Stephens; but *lacteana*, as figured by Herrich-Schäffer, has a blue-grey dorsal blotch edged with grey; the wings also are broader than those of *candidulana*, Nolek.

Grapholita pupillana, Clerck.

Grapholita citrana, Hübn.—M. Jourdhueille says "larva in the lowers of *Artemesia campestris*." This is one of the species which still exist on the ancient sea-sands of Brandon (now twenty miles from the sea). It is very common there, and seems to frequent *Achillea millefolium*.

Sphaleroptera ictericana, Haw.—Changed by Wocke to *longana*, Haw. This is Haworth's name for the ♀, and occurs six pages earlier in his work than that of the ♂, hence the change. This, however, seems rather a severe stretch of the law of priority.

(To be continued).

Notes on captures of Coleoptera near Llangollen and Manchester.—During the past year, I found near Llangollen *Lathrobium angusticolle* (under a stone on Griben Oernant); *Telephorus unicolor* and *fuscus*; *Balaninus villosus*, by beating; *Opilus mollis* under ash bark; and a few *Athous vittatus* by sweeping; and in the vicinity of Manchester, *Choragus Sheppardi*; *Haplocnemus nigricornis*; and a few *Cis vestitus*.—JOSEPH CHAPPELL, 1, Naylar Street, Hulme, Manchester: 7th April, 1874.

A brood of white-ants (Termites) at Kew.—Some time since, the Museum attached to the Royal Gardens at Kew received a portion of the trunk of the tree (*Trachylobium Hornmannianum*) that produces the gum copal of East Africa. Quite recently, this was found to be infested by a colony of white-ants, and living specimens of the insect (winged and in various apterous forms) were exhibited by Mr. Jackson, the Curator, at the last meeting of the Linnean Society, and of the Scientific Committee of the Royal Horticultural Society. Through the kindness of Mr. Jackson, I have been able to make a preliminary examination of the insect, and find it to be a species (not yet identified by me) of the genus *Calotermes* of Hagen. The winged examples (unexpanded) are somewhat over half-an-inch in length. It would probably be difficult to find anywhere in this country conditions more favourable to the development of white-ants than exist at Kew, and no place in which their ravages (if a colony were to be established) would be of greater consequence; it is to be hoped, therefore, that every precaution will be taken to avoid such a contingency. At pro-

sent, the wood is enclosed in a glass jar, so as to afford an opportunity of observing the habits of the creatures, this being probably the first time that any species has been found alive in this country. In the south of France, two small indigenous species do considerable damage, and a small North American species (*Termes flavipes*) had at one time established itself in the hothouses of the gardens of Schönbrunn, at Vienna, principally infesting the tubs in which plants were growing. I know not if it still exist there. I hope, hereafter, to give additional notes on this interesting subject, and to be able to add the specific name of the species, if it be described.—R. McLACHLAN, Lewisham: 15th May, 1874.

P.S.—Since the foregoing notes were written, I have made a more extended examination of the insect, and think it to belong to an undescribed species. It is allied to *C. solidus*, Hagen, but is somewhat larger, darker in colour, and with a slightly different form of prothorax. The types of *solidus* are from children's collection, with, unfortunately, no indication of locality. In his Monograph, Hagen, when describing *C. brevis*, a species from Central and South America, speaks of two examples enclosed in copal. It seems to me scarcely probable that an American species should occur under such circumstances, and quite possible that these entombed individuals may be identical specifically with those now bred from the wood of the copal tree, for *C. brevis*, although decidedly different, is yet allied, and a minute examination of insects enclosed in copal or amber is always attended by uncertainty. Two erroneous names have been given for the Kew insect; firstly that of *Eutermes lateralis*, Walker (cf. Proc. Linn. Soc., May 7th, 1874), and *E. nemoralis* (cf. 'Nature,' No. 238, p. 57; probably a misprint, for there is no species of that name).—R. McL.: May 22nd, 1874.

Note on Aphelochirus æstivalis.—A specimen of this very interesting and rare Hemipterous insect was taken in the Bathampton Wick river (near Bath) on the 17th September, 1868, by E. C. Broome, Esq., and is now in the Local Natural History Collection of the Bath Institution. It is in the same condition (with rudimentary hemielytra, and destitute of wings) as the individual I took long ago at Eynsham.—J. O. WESTWOOD, Oxford: May, 1874.

Eupithecia two years in the pupa state.—With reference to the note in the May number of this Magazine on *E. dodoneata*, I may state that my experience with *expallidata* is that more than half of the specimens I capture remain two years in the pupa. This happens continually, season after season.—JOHN HELLINS, Exeter: 14th May, 1874.

Note on Eubolia lineolata.—In my paper on *Eubolia lineolata*, I omitted to mention that in 1868 I had a spring brood of larvæ, all the moths from which appeared as a summer flight in July, except one specimen, which remained over the winter, and did not appear until May 20th, 1869.—Id.

Note on Rhopalocera from Africa.—I have just received a very fine specimen of *Papilio Antimachus* (the third) taken by Mr. Rogers at the Gaboon, and several new species of which it is too late in the month to send descriptions. There are two examples of *Pieris rapæ*, which it would puzzle the most microscopical species-maker to separate from ours.—W. C. HEWITSON, Oatlands, Weybridge: May, 1874.

Confirmation of Dianthæcia albimacula as a British species, with description

of its larva, &c.—On July 19th, 1873, I had the pleasure of receiving from Mr. Stainton five larvæ in different stages of growth, which had been found feeding on the unripe seeds of *Silene nutans* by Mr. H. Moncreaff; these I at once saw were a species of *Dianthæcia* new to me, and, on referring to an extract from the “*Annales de la Société Entomologique de France*” published in 1830, I found there an account of *albimacula* by M. Guenée, which seemed to suit them well; I would not, however, venture upon publishing the notes I made of them, until their identity had been established beyond doubt, and this has now been done most satisfactorily. Mr. Moncreaff has bred a specimen of *albimacula* as early as the 6th of May from the larvæ he collected last summer, by placing some of the pupæ in a warm room. We are now sure, therefore, that *albimacula* is a species which breeds in England. For some years it had been relegated to the list of reputed British species (though Stainton’s Manual kept it in its place), until the announcement of its re-discovery in 1865, by the capture of a single specimen, which was sent to Dr. Knaggs for identification, as recorded in the 1st Volume of The Entomologists’ Monthly Magazine, p. 237.

The larvæ I had, fed well on the *Silene nutans* that accompanied them, and soon ate out the contents of the capsules of which Mr. Moncreaff kindly sent a further supply, and when these dried up I found the three younger larvæ (two having already turned to pupæ) take very well both to *Silene inflata* and to *maritima*, and between the 14th and 25th of August they retired into the soil prepared for them.

The young larva when a quarter of an inch long is of a greenish-grey colour, and darker than it afterwards becomes; at this time it has pale dorsal and sub-dorsal lines; with a darker stripe along the spiracles, bounded above by a paler undulating line; some faint darker marks along the back indicate the rudiments of the future dorsal design; a pale stripe runs beneath the spiracles, and the belly is darker greenish-grey. At its next moult, when about three-eighths of an inch long, the ground colour is either a pale drab or pale ochreous-yellow with the design of dark grey or blackish diamond shapes and spots on the back tolerably distinct; and, when it has attained the length of about three-quarters of an inch, the whole pattern of its markings is (as usual) more clearly defined than at any other period, composed as they are of closely aggregated greyish or blackish atoms, which, as the larva grows, become more dispersed with increasing intervals of the ground colour between them; but in this clearly defined stage of marking the ground colour is yellowish-ochreous, the dorsal pattern consists of a somewhat ovate blackish spot at the beginning, followed by a diamond or pear-shape extending to the end of each segment; the front half of each of these pears or diamonds is rather bare of freckles within its outline, showing the ground colour there more or less, while the hinder part is filled up so as to look blackish, the anterior pairs of tubercular black dots show distinct on the clear unfreckled ground of the back, the hinder pairs of dots are often attached to the lateral angles of the diamond shapes, but not invariably so, though they are always touched by a blackish line of freckles that curves or festoons along from the hinder dot of one segment to the hinder dot of the next; beneath this is the sub-dorsal interval of clear and paler ground colour; and then come two broad and irregularly thickened stripes of freckles, which about the middle of each segment slope towards each other till they touch, then returning to their previous level; the ground in the space just below the point of contact is filled with freckles which partly surround the white spiracle outlined with black.

The larva, when full-grown, measures one and a quarter inches in length, is of moderate stoutness, cylindrical, with the head a trifle smaller than the second segment, which is in turn a little less than the third, the anal segment tapering a little behind: its ground colour now is pale ochreous or pale brownish-ochreous, the head is delicately freckled and streaked with dark brown down the front of each lobe, the second segment has a dark brown or brownish-grey plate through which the fine dorsal and broader sub-dorsal lines of ground colour are visible; on the rest the dorsal line can be faintly discerned as a fine thread of ground colour running through the dorsal blackish spots and ill defined pear-shapes that follow them, both front and hind pair of black dots are now equally distinct on the back of each segment, a similar dot is situated a little above each spiracle, which last is whitish faintly outlined with black; a patch of dark grey or blackish freckles anteriorly in the sub-dorsal region, and some broken patches of lines of freckles extending in curves to the spiracular region on each segment are now the only remains of the design mentioned in the previous stage; this change having been brought about by the scattering of the dark atoms which before were confined in lines; the belly and legs are of the ground colour.

As will be seen from what follows, there is considerable resemblance between this larva and some of its congeners, but to my eye *its* most striking characteristic is the *absence* of the *slanting streaks* or *chevrons* which *they* so generally have.

The pupa is little more than five-eighths of an inch long, stout in proportion, the wing, antennæ, and trunk cases projecting in a blunt point over the abdomen, which tapers off gradually; the abdominal rings are partly granulous; the colour of the thorax and wing cases is deep reddish-brown, the abdomen dark brown.

M. Guenée has observed of the larva of *albimacula* that "in a manner it resembles that of *capsincola*, and when they are together on the same plant they "afford fine exercise for the eyes to distinguish them."

"It is found upon *Silene nutans*, and sometimes, but much more rarely, on "*Silene inflata*. In captivity it accommodates itself well to these two plants, also "to *Lychnis dioica*."

"This caterpillar is not rare where *Silene nutans* grow, that is to say in the arid "and hilly places of certain woods."—WM. BUCKLER, Emsworth: *May 11th*, 1874.

Cosmopteryx Scribæiella bred.—Professor Frey of Zurich, writes to me that on the morning of the 25th April, he bred nine specimens of *C. Scribæiella*!

Last September he had suggested to Herr Boll of Bremgarten, that he should search the reeds (*Arundo phragmites*) in that neighbourhood for the chance of finding larvæ of *Cosmopteryx Lienigiella*. Herr Boll found some mines in September, and thereby Professor Frey was himself attracted to Bremgarten; and he and Herr Boll, early in October, found these mines on the reeds very common along the banks of the Reuss, and they could have collected them by hundreds in a day. Being, however, firmly convinced they were only collecting the already well-known larva of *C. Lienigiella*, they soon desisted from collecting more, and now *C. Scribæiella* has been bred from these reed-miners.

Descriptions of this insect will be found in the Stettin. Entomolog. Zeitung, 1850, p. 197; in Herrieh-Schaffer, V. p. 281, fig. 998; in the Transactions of the Entomological Society of London, 3rd Series, Vol. I. pp. 642, 645, and 654. It will

be sufficient here to remind the reader that in *Scribaella* the ground colour of the anterior wings is brown, with three slender longitudinal silvery streaks in the basal portion of the wing (in that respect resembling *Lienigiella*), and that the outer margin of the dark yellow central fascia is ruptured a little above the middle of the wing, and the orange-yellow colour protrudes through it.

It was only on the 2nd of April this year, that I received, through M. Ragonot, a specimen of this insect for determination, which he had found among some *incognita* captured by M. Constant, of Autun, and the sight of this led me to hope that ere long the larva would be discovered, but I little expected I should record its discovery so soon.—H. T. STANTON, Mountsfield, Lewisham; May 6th, 1874.

Eudorea coarctalis hibernating.—Is it generally known that the *Eudoreæ* hibernate? On the 20th of April I took two specimens of this species on Farrington moss near here; this is an August species with us. May not the *Crambus ocellæa* that have been taken near Liverpool during the early months of the year have hibernated, and ought to have been looked for in August or September? I ought to add that the hibernated *coarctalis* were females.—J. B. HODGKINSON, Preston: May, 1874.

Early appearance of Caloptria aspidiscana, &c.—The very hot weather preceding the 2nd of May, tempted me to pay a visit to my old hunting grounds at Grange-over-Sands and Witherslack. The day, with a cold wind from the north, was not a very likely one for captures; however, in a snug sheltered corner with a fair amount of sun, I made a tolerably good bag of wood whites, brimstones, speckled woods, duke fritillaries, argiolus blues, and orange tips, and saw three of the common whites quite busy enjoying the warmth. As I was eagerly watching for some small fry to appear, up crept two moths out of the roots of the golden rod at my feet; I netted both at once—two *aspidiscana*, both males. I walked up and down for four hours, and took five more males and one female in beautiful condition. I may here note they are not to be trusted long in a pill box without damaging themselves, so I chloroformed them at once, and pinned them. There was nothing else of note out. *P. Lewenhoeckella*, *Dicrorampha plumbana*, a few *Lithocolletes*, also *Cemiosoma laburnella*, and an *Elachista*, which must be a new one: it is certainly not *nigrella*, the antennæ are so thick, and the wings are covered with thicker scales than any of the others that I know. In the same place I got some *Coleophora* cases which are quite new to me, not unlike or rather between *riminetella* and *nigricella*; much larger than the latter. I expect they will be *orbitella*. They are feeding on the mountain-ash. Journeying on a few miles to Witherslack, I spent two more days, and scarcely saw an insect. The weather being bitterly cold, only *E. indagata*, *P. variata*, *Incurvaria Zinckenii*, *Phoxopteryx uncanæ*, *Gracilaria aurogutella*, and a few *Nepticulæ* turned out, or rather I made them do so with hard beating; a few larvæ of *Pterophorus tephradactylus* on the golden rod in shady places where their presence may easily be seen; they strip the leaves quite as much as a large *Noctua* larva or a snail does. Among the shoots of mountain ash I got a good number of *Argyresthia spinicella*, and a few more *Coleophoræ*, the same as at Grange. A lot of *Laverna rharniella*, and some young *S. signatana* larvæ, and some *T. Verhuellella* off the ferns closed up my journeying. I may except *Nola cristulalis*, which, as usual, was sitting head downwards. I never saw this earlier than 20th May.—ID.

Obituary.

Dr. Herrich-Schäffer.—We announced with great regret on the wrapper of our last number the death of Dr. Gottlieb August Herrich-Schäffer, of Ratisbon, on the 14th April.

Dr. Herrich-Schäffer was born in 1799, and till 1871 retained all the activity of a younger man; but in that year he had two paralytic strokes, from the effects of which he never thoroughly rallied, and latterly, he had been afflicted with softening of the brain, and his case had been for some time considered perfectly hopeless.

Dr. Herrich-Schäffer was an hereditary entomologist; his grandfather, Dr. J. C. Schäffer was a voluminous writer on insects from 1752 to 1779, and is perhaps best known by his "*Icones Insectorum circa Ratisbonam*," a quarto work with one hundred and eighty coloured plates.

Dr. J. C. Schäffer's son, the father of Herrich-Schäffer, contributed fifty pages on "*Insecta*" to a medical work on Ratisbon, and thus just obtained a place in Hagen's Bibliography; but the labours of the grandfather were quite eclipsed by those of the grandson whose loss we now deplore.

Herrich-Schäffer, born in 1799, obtained his Doctor's degree in 1821, and in the same year appeared his first entomological publication, "*De generatione insectorum partibusque ei inservientibus*," and eight years later we find him occupied with a continuation of Panzer's "*Fauna insectorum Germaniæ*," which continued to appear till 1844.

In 1836, he commenced a continuation of Hahn's "*Wanzenartigen Insecten*," which continued till 1853. His great work was, however, the "*Systematische Bearbeitung der Schmetterlinge von Europa*," intended as a supplement and completion of Hübner's "*Sammlung europäischer Schmetterlinge*." This work, commenced in 1843 and continued to 1856, is in six volumes quarto, with six hundred and seventy-two plates, of which six hundred and thirty-six are coloured. It is a real monument of labour and industry. From the year 1847 forwards, he was a very frequent writer in the "*Correspondenzblatt des zoologisch mineralogisch Vereins in Regensburg*." In 1861 he started a monthly periodical exclusively for entomology, "*Correspondenzblatt für Sammler von Insecten insbesondere von Schmetterlingen*," and of this he wrote nearly the whole. In addition to all his literary productions, he was a keen practical collector, and made frequent visits to the Swiss Alps, and rarely failed to attend the annual meetings of German Naturalists.

In Ratisbon he was in busy practice as a Physician, and in 1871, on the occasion of the celebration of the fiftieth Anniversary (Jubilee) of his obtaining his Doctor's degree, he was presented with the freedom of his native city.

Dr. Herrich-Schäffer visited England in 1851, attracted hither by the fame of the Great Exhibition.

Thomas John Bold.—It is with the most sincere regret that we chronicle the loss of this well-known British entomologist, who died, after a short ailment, at his residence, Long Benton, near Newcastle-on-Tyne, on the 5th ult., in the 58th year of his age. He died in harness (though labouring for more than seven years under

paralysis, which deprived him of the power of locomotion), being actually engaged at the time of his decease upon a catalogue of the *Tenthredinidæ* of the Northumbrian district, and having published some observations in this Magazine so late as the 7th March last. As an entomologist, his name is familiar to those of the present and last generations (with all genuine workers of which he corresponded), since he never ceased from the task of recording and elucidating the insect-fauna of his district for thirty years before his death, and his notes on the habits, &c., of insects of all orders are scattered over the pages of the Transactions of the Local Societies to which he belonged, of the "Zoologist," and of this Magazine (in the latter, no less than fifty-six in number). The "Catalogue of the Insects of Northumberland and Durham, *Coleoptera*," published by Mr. J. Hardy and himself in the Transactions of the Tyneside Naturalists' Field Club, 1852, was, however, the first of the more important works with which his name will be connected, and which are not the least valuable of the services which that Society (perhaps the best of all British Local Associations) has rendered to practical science. Mr. Bold from time to time in 1864, 1865, and 1867, published various corrections and additions to this list, and finally, in 1871, in the Natural History Transactions of Northumberland and Durham, Vol. iv, entirely reconstructed it; following it up with a similar catalogue of the *Hemiptera-Heteroptera* of the district, and a list of the *Homoptera* new to Northumberland. He also carefully investigated the *Heterogyna*, *Fossores*, and *Anthophila* of the same district, and was collecting literary and other materials for a similar elaboration of the *Ichneumonidæ*. Although not a descriptive Naturalist (only two species founded by him occur to us: *Macrocoleus Hardyi* in *Hemiptera*, and *Scymnus lividus* in *Coleoptera*), we are practically indebted to him for the addition to the British fauna list of *Pompilus melanarius*, *Passalæcus monilicornis*, and *Strongylogaster filicis* (*Hymenoptera*), and *Anchomenus 4-punctatus*, *Bembidium Fockii*, *4-signatum*, *obliquum*, and *Schuppelli*, *Haliphus varius*, *Colymbetes dispar*, *Phytosus nigriventris* (*balticus*), *Aleochara villosa*, *Tachyusa carbonaria*, *Mycetoporus longulus*, *Bryoporus castaneus* (practically a new species), *Platystethus capito*, *Meligethes brunnicornis*, *Cryptophagus badius*, *fumatus*, *dentatus*, and *validus*, *Ephistemus globosus*, *Anomatus 12-striatus*, *Aphodius fœtidus*, and *Blaps mortisaga* (*Coleoptera*).

Mr. Bold was born near Tanfield, Durham, in September, 1816, and from his 18th year resided in or near Newcastle, being engaged in the seed trade. In retirement, he taught himself French, Latin, and German enough for entomological purposes, and gradually acquired a working library of works in those languages. He was indefatigably industrious, of a generous disposition, ever ready to assist others, and incapable of enduring a "sham," or the appearance of insincerity. The work of a local faunist, humble enough in comparison with higher aims, was nevertheless ennobled by him, for he did it with his whole heart, and did it well: nor was his genuine worth unnoticed in his own country, for he was Vice-President of the Tyneside Naturalists' Field Club, Associate and Honorary Entomological Curator of the Natural History Society of Northumberland, &c., and Honorary Member of the Literary and Philosophical Society of Newcastle. It is to be hoped that those Associations may find a successor able and willing to complete the work he had so well carried on, and so nearly completed.

NOTES ON *CICINDELIDÆ* AND *CARABIDÆ*, AND DESCRIPTIONS
OF NEW SPECIES (No. 17).

(Resumed from vol. ix, p. 52.)

BY H. W. BATES, F.L.S., &c.

Sub-family CARABINÆ.

NEBRIA LEWISI, *sp. n.*

N. livida (L.) *affinis, at minor et gracilior. Elongato-oblonga, ochraceo-fulva; collo, thoracis disco, plagaque magna elytrorum discoidali communi, et pectore, nigris; thorace longius cordato, angulis posticis productis, acutis; elytris interstitio tertio impunctato, quartoque apice valde elevato.* Long. $5\frac{1}{2}$ lin.

Smaller and more slender than *N. livida*; in colour it differs in the head having only the broad neck, up to the posterior margin of the eyes, black; in the thorax having its whole central part of the same colour, leaving the lateral borders pale; and in the elytra being pale, with a large rounded black patch behind the middle, continued sometimes along the suture to the base. The thorax differs in form in being longer and less transverse, with the posterior narrowing much more gradual, and the hind angles more turned outwards; the borders are punctured in a similar way. The elytra are quite parallel, and with shoulders quite as well marked as in *N. livida*, but the striae are finer and more sharply scored, finely punctulate in their bottom, and the interstices show no punctuation. Beneath black, with the apical part of the abdomen tawny.

Kawatchi, Japan. Sent home by Mr. G. Lewis's native collector.

NEBRIA ELLIPTIPENNIS, *sp. n.*

N. intricata affinis, sed magis elongata, elytris elongato-ellipticis sericeo-opacis, striis vix punctulatis. Elongata, piceo-nigra; capite ut in N. intricata, sed oculis paulo minus prominulis; thorace cordato, postice gradatim angustato, angulis posticis retrorsum spectantibus; elytris sericeo-opacis, humeris fortiter rotundatis, medio parallelis, supra striatis, striis vix punctulatis. Long. 7 lin. ♀.

Nearest resembling *N. intricata*, at least in the form of the head and thorax, but the elytra more elongated, with much rounder or more effaced shoulders and with striae almost simple, a fine punctuation showing only under the lens. The colour is black, rufescent pitchy beneath, and with sub-opaque silky elytra. The head has a red spot on the crown, and is punctulate and rugulose; the eyes are moderately prominent, and the neck is not narrowed. The palpi are

pitchy-red. The thorax is rather more cordate than in *N. intricata*; the anterior angles are moderately produced and acute; the posterior angles are not at all turned outwards, but are prolonged posteriorly, so that the base appears strongly quadrate-emarginate. The elytra are elliptical rather than oblong, and are not dilated posteriorly; the interstices are very slightly convex, the third having three punctures, and the fourth is carinated at the apex.

Kurdistan.

I have failed to find any description by Falderman, Chaudoir, Fischer and others, that applies in any degree to this species.

NEBRIA CRASSICEPS, *sp. n.*

Magna, elongato-oblonga, depressa, nigra, subsericea; capite magno, exserto, collo crasso, convexo, oculis parvis, haud prominulis; thorace transverso, postice fortiter sinuatim angustato, angulis omnibus acutis; elytris punctulato-striatis, humeris obtusis. Long. 9 lin.

Allied to *N. Marchalli*, the head and thorax being of similar form; but the general form is more elongate and oblong, with perfectly oblong elytra, and the colour is black. The head is large, and very long and thick behind, with small flattened eyes; and its surface is very finely punctulated. The thorax is much shorter and broader than in *N. Marchalli*; the anterior angles are remarkably produced, almost as much as in *N. dilatata*; from the middle, the sides are strongly sinuate-angustate, with out-turned and acute posterior angles and nearly straightly truncated base; the lateral margins are broadly explanate, with the marginal rims thick and raised. The elytra are oblong, quite parallel, from the obtuse but distinct shoulders to near the apex, and distinctly punctate-striated; there are no distinct punctures on the third interstice, and the fourth is not carinated at the apex.

Kurdistan.

Sub-family OZÆNINÆ.

OZENA MAGNA, *sp. n.*

Maxime elongata, anguste parallelogrammica, nigra, nitida; antennis brevibus, crassis, sub-compressis, nudis, nitidis, grosse punctatis, articulis 7-10 intus foveâ, 11^{mo} marginibus, minute porosis; thorace paulo transverso, quadrato, postice sinuatim paulo angustato, angulis posticis fere rectis, suprâ cum capite sparsim punctato; elytris omnino parallelis, fortiter punctulato-striatis, interstitiis omnibus sparsim punctulatis; femoribus anticis (♀) haud dentatis. Long. 9½ lin. ♀.

I place this and the following species in the restricted genus

Ozæna, almost solely on account of the naked antennæ; in the length of these organs they differ much from *Ozæna*, as defined by Baron Chaudoir, the proportion being scarcely one-third the length of the body, whereas in *Ozæna* it is more than one-half. The absence of the usual porosity of the antennal joints (from the 5th to the 11th) seems to me a much more important character, and in this they agree with *O. dentipes*, and differ from all other genera of the group. *O. magna* also has a pencil of hairs on the back of the maxillæ near the tip, which does not exist in *Pachyletes*. The palpi are short and thick, with the apical joints dilated. The porosity of the antennæ exists in *O. magna* in a very concentrated state, being confined to a very small pit on each surface of the 7th to the 10th antennal joints near their compressed inner edge, and to the bevelled margins of the large ovate terminal joint.

The whole insect is deep glossy-black; the head and thorax sprinkled with fine distinct punctures, and the latter also transversely wrinkled. The form of the thorax is transverse cordate-quadrate, with the lateral sinuation well marked, and the hind angles turned outwards, but not acute, being scarcely rectangular. The eyes are very prominent, and the head narrowed to a neck almost immediately behind them.

São Paulo de Olivença; Upper Amazons. One example, which flew at night to a light in my chamber.

OZÆNA BREVICORNIS, sp. n.

Anguste parallelogrammica, elongata, nigra, nitida; antennis brevibus, crassis, glabris, punctatis, articulis 6-10 brevissimis et latissimis, 9-10 foveis 11 margine, porosis; thorace transversim quadrato-cordato, postice haud sinuato, angulis obtusis, haud prominulis; elytris fortiter punctulato-striatis, interstitiis omnibus sparsissime punctulatis.

Long. 8 lin. ♀.

Differs from *O. magna* in the antennæ being shorter, and the joints 6 to 10 much broader and shorter. The thorax also differs in the hind angles not being recurved outwards, nor preceded by a sinuation of the sides. The thorax and the interstices of the elytra have fewer fine punctures.

Peru; one example.

The above-described species are further distinguished from *Pachyletes*, *Scythropasus*, &c., by the simple large emargination of the anterior tibiæ, without projecting upper lobe or tooth, and by the presence of a narrow grooved mesosternum between the middle coxæ, the metasternum projecting in a very long narrow process.

PACHYTELES SETIFER, sp. n.

P. filiformi proxime affinis, at elytris triseriatim setosis differt. Elongatus, linearis, castaneo-fuscus, antennis basi, oris partibus thoracisque margine rufo-castaneis; pedibus, sutura margineque elytrorum paulo pallidioribus; elytris utrinque setis longis in seriebus tribus ordinatis.
 Long. $5\frac{1}{2}$ lin.

Of the same narrow linear form as *P. filiformis*, Casteln. Head and antennæ of similar form and proportions; thorax quadrate, slightly narrowed behind, but without the sinuation visible in *P. filiformis*, the narrowing being straight to the tip of the hind angles, which project beyond the basal line of the thorax; the sides anteriorly bear a number of setigerous punctures: the surface is faintly wrinkled. The elytra have extremely fine punctulate striæ, and the 1st, 3rd, and 5th interstices bear each a line of very long erect hairs, which are particularly numerous on the 3rd, reaching from base to apex.

Macas; Equador (Mr. Buckley).

PACHYTELES GONIADERUS, sp. n.

Oblongus, fulvus, nitidus; thorace lato, postice valde angustato, angulis anticis longe productis, acutis, posticis rectis, lateribus late explanatis; elytris striatis, interstitiis alternis convexis tertio et quinto punctatis, cæteris lævibus.
 Long. 4 lin.

In general form much resembling *P. lævigatus*, Dej. The thorax is very similar, differing chiefly in the much more produced anterior angles, which are a little turned outwards. The fine punctulated striæ of the elytra are nearly the same, but owing to the strong elevation of many of the interstices, they seem much more deeply sunk, and on the sides (which are sericeous-opaque) they are irregular. The antennæ are decidedly longer, owing to the more oblong form of its joints.

Ega.

PACHYTELES UNDULATUS, sp. n.

Oblongus, testaceo-rufus, nitidus, elytris disco fuscis; thorace transverso, angulis anticis productis acutissimis, posticis acutis, lateribus undulatis, suprâ sparsim grossissime punctato; elytris usque ad marginem grosse punctato-striatis.
 Long. 3 lin.

Differs from *P. goniaderus* by the large punctures sparingly scattered over the otherwise glossy, smooth thorax, and by the undulated lateral edges, which form at irregular intervals distinct angles; the edge is markedly sinuated close behind the sharp anterior angles;

the posterior angles are also sharp and project a little outwards, the hind margin being straight. The elytra are rather strongly punctate-striate, even to the lateral margins, where there is no smooth subopaque space; most of the interstices are convex, and the third has a row of fine setiferous punctures.

Ega.

PACHYTELES FUSCULUS, sp. n.

Castaneo-fuscus, sub-nitidus; capite angustiore, oculis parum prominentis; thorace transverso, cordato, angulis anticis rectis, posticis acutis, suprà transversim strigoso; elytris fortiter punctulato-striatis, interstitiis plus minusve punctatis, striis apud latera confusis. Long. $3\frac{1}{2}$ lin.

Differs from *P. lævigatus*, *granulatus*, and allies, by the less prominent eyes, in which it exactly resembles *P. marginicollis* of Chili. The general colour is uniform chestnut-brown, the elytra having no trace of other colour; but the head is blacker and the legs redder. The anterior angles of the thorax are not in the slightest produced, but they form a very pronounced rectangle. Nearly all the interstices of the elytra have a row of conspicuous punctures.

Ega; Amazons.

PACHYTELES TAPAJONUS, sp. n.

P. lævigato (Dej.) *proxime affinis, differt solùm thorace latiori, elytrisq̃ue fortius punctulato-striatis.* Long. $3\frac{1}{2}$ lin.

Of the same oblong form as *P. lævigatus*. Chestnut-red; head behind blackish, disc of each elytron dusky-brown. Thorax transverse, quadrate-cordate, anterior angles very slightly prominent, sides slightly incurved behind them, thence rotundate-dilated (slightly undulated), behind rather strongly sinuate-angustate, hind angles rectangular; disc smooth. Elytra with well marked punctulate striæ, interstices slightly convex, 3rd and 5th with a few fine setiferous punctures, sides sericeous-opaque. The antennæ are moderately short and thick, as in *P. lævigatus*.

R. Tapajos; Amazons.

PACHYTELES PERUVIANUS, sp. n.

P. lævigato simillimus, at paulo angustior et obscurior, elytris distincte striato-punctulatis. Long. $3\frac{3}{4}$ lin.

The colour of the upper surface is chestnut-brown, with the head behind blacker, but the thorax not reddish as in *P. lævigatus* and *P. Tapajonus*; the elytra too have not the distinct reddish sutural

border, the extreme sutural margin only being rather pale. The head and antennæ show no difference from *P. lævigatus*. The thorax also is precisely similar, being quadrate-cordate, with sharp anterior and posterior angles, the former very slightly produced with a sinuation in the sides behind them. The elytra are narrower, and more parallel; with rows of fine punctures, not distinctly impressed in striæ, and interstices perfectly plane and not so glossy as in *P. lævigatus*; the 3rd and 5th interstices have a few inconspicuous punctures.

R. Huallaga; Peru (Mr. Bartlett).

PACHYTELES SULCIPENNIS, sp. n.

P. granulato affinis; thorace glabro grosse sparsim punctato differt. Convexus, castaneo-rufus, nitidus, capite postice fusco; elytris omnino profunde sulcatis, sulcis fundo punctulatis, interstitiis convexis nitidis, plerumque seriatim punctatis.

Long. 3¼ lin.

The head, as in *P. granulatus*, is strongly constricted behind the eyes; the bottom of the constriction is rugose, and the convex middle of the forehead smooth. The thorax is transverse-quadrate, not so much narrowed behind as in *P. lævigatus* and allies; all the angles nearly rectangular, the sides slightly sinuated behind the anterior angles, and their edges undulated; the surface is sprinkled throughout with large round punctures. The sulci of the elytra are deep even on the sides and up to the wheal at the apex of the elytra; their punctuation crenulates the sides; but the summits of the interstices are glossy and smooth, with a row of punctures on most of them.

Ega. This species must be nearly allied to *P. distinctus* (Chaud.), but that is described as having the thorax "ad latera tantum nonnihil punctatus."

PACHYTELES ASPERICOLLIS, sp. n.

Elongato-oblongus, castaneo-rufus, elytris nigris politis; capite et thorace elytris plus quam dimidio angustioribus, densissime scabrosis opacis, hoc lateribus multidentatis; elytris punctulato-striatis, interstitiis planis.

Long. 3½ lin.

A remarkable species, somewhat resembling *P. granulatus* in the sculpture, but not in the form of the thorax, which is narrow, subcordate, narrowed only near the base; its anterior angles are much produced forward and acute, its sides are scarcely rounded and dilated, and present a series of three or four dentiform projections with corresponding sharp notches, and the whole surface is densely sculptured and clothed with erect hairs. The head is similarly sculptured from

the neck to the epistome, and the usual depressions are not visible. The antennæ are moderately short and densely setose. The elytra are glabrous and shining, with regular punctulate striæ, and perfectly plane interstices, the 3rd and 5th of which have a row of minute setiferous punctures. The anterior thighs have a strong broad tooth beneath.

Tunantins; Upper Amazons.

PACHYTELES FULIGINELLUS, sp. n.

P. Gyllenhalii (Dej.) *proxime affinis. Omnino fuligineo-niger, breviter setosus; thorace quadrato, basin versus parum sinuatim angustato, angulis anticis acutis, posticis rectis; elytris punctulato-striatis, interstitiis plerumque convexis.* Long. $2\frac{1}{2}$ lin.

Differs from *P. Gyllenhalii* almost solely in the sooty-black colour of its whole upper-surface and limbs; the under-surface being rufo-piceous. Above, the body is covered with short erect setæ implanted in fine punctures. The head has a few large scattered punctures. The thorax has extremely narrow lateral margins and is very little rounded anteriorly, and narrowed only very near the hind angles. The elytra have the punctured striæ more deeply sunk, or, rather, the interstices more convex.

Chontales, Nicaragua.

Bartholomew Road, Kentish Town, N.W.:

May, 1874.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from p. 15).

Cnephasia cinctana, Schiff.—Dr. Wocke removes this from the *Cnephasiidae*, placing it in the genus *Lophoderus*, near to *ministrana*, L.

Cnephasia hybridana, Hübn.—Heinemann seems to have fallen into an error here, in which Prof. Zeller is inclined to follow him. They both refer our *hybridana* to *albulana*, Tr., and call a closely allied straw coloured species *hybridana*. Hübner does not confirm this, as his figure of *hybridana* represents a grey example of our insect. Moreover, Dr. Wocke quotes *curvifasciana* and *rectifasciana* of Haworth and Stephens as synonyms of *hybridana*, Hübn., and they are without doubt the ♂ and ♀ of our species. This has been confirmed by M. Guenée, to whom Mr. Doubleday sent specimens.

Wocke removes *hybridana* into the genus *Olindia* (with *ulmana*),

and makes *albulana*, Tr., a variety of it. If this be correct, the variation is very extraordinary. The other species of the genus *Cnephasia* (with the exception perhaps of *nubilana*) are so deeply involved in difficulty from the extraordinary manner in which they appear to run into one another, and the extreme difficulty of deciding which *are* species and which merely local varieties, that I think it best to defer any detailed notice of them for the present, in the hope that some satisfactory conclusions may be arrived at in the future. Of this there is the greatest probability, since the investigations of Dr. Ottmar Hoffman (translated by Mr. Stainton in the Ent. Ann., 1873, p. 50) seem to point to reliable *structural* characters separating the species. It is satisfactory to find that, as far as they have gone, his observations seem to confirm the distinctness of the most puzzling allied species, and to condemn Dr. Wocke's method of getting through the difficulty by putting most of them together under the name of *Wahlbomiana*, Linn.

As Mr. Doubleday has added this name and that of *abrasana*, Dup., to the latest Supplement to his List, it may be well to say that *Wahlbomiana* appears, as far as I can judge, to be the longer winged form, common on some parts of the coast as well as occasionally inland, which has hitherto been placed with *subjectuna* or *virgaureana*, or called incorrectly by the name of *pasivana*, Hübn.

Abrasana, Dup., is a nearly unicolorous pale grey insect larger and paler than *nubilana*.

Ablabia pratana, Hübn.—Wocke substitutes *osseana*, Scop., as an earlier name.

In this family Dr. Wocke places two rather anomalous species which are not included by Wilkinson in his work: *Tortricodes hyemana*, Hb., which he changes to *tortricella*, Hübner's earlier name for the ♀; and *Exapate gelatella*, Linn., which he changes to *congelatella*, Clerck.

Euchromia arbutella, Linn.

Euchromia fulvipunctana, Haw.—Corrected by Mr. Doubleday in his List to *flammeana*, Fröl., but now again altered by him, as well as by Dr. Wocke, to *Mygindana*, Schiff., a still earlier name.

Euchromia purpurana, Haw.—Dr. Wocke sinks this species as a variety of *rufana*, Scop., but I am decidedly of opinion that they are distinct, the fore-wings in this species being narrower in proportion to their length than in *rufana*. Mr. Doubleday in the last Supplement to his List adopts this view.

Euchromia rufana, Scop.—Recorded as British, but not described, in the Ent. Ann., 1864, p. 126, having been taken rather freely by Mr. Hodgkinson in Cumberland. I append a short description.

Alar. exp. 8 lines.

Head and thorax reddish; palpi paler; antennæ dark grey; fore-wings greyish-brown entirely reticulated with dark crimson scales, which give the insect a reddish-brown appearance; hind-wings pale grey; cilia whitish, with a grey line near the base. ♀ darker, the fore-wings being reticulated with olive-brown scales; hind-wings dark grey.

A variety of an olive-grey colour with reddish cilia seems not uncommon.

Some time ago, Mr. Hodgkinson obligingly sent me a number of living specimens, which, from the arched costa and greater breadth of their fore-wings, had a very different appearance from *purpurana*, which I used to find at Haslemere.

Euchromia ericetana, Westw.—Dr. Wocke sinks this name in favour of *trifoliata*, H.-S., the name by which it appears to be generally known in Germany, but this cannot stand, since Westwood's name is anterior, and is accompanied by a recognizable description. It cannot be admitted even on the ground that there is another *ericetana* in Wocke's genus *Steganoptycha*, since that also is a name of later date. *Ericetana*, Westw., must therefore be retained for this species.

Euchromia striana, Schiff.

Euchromia Branderiana, Linn.—M. Jourdeuille in his Calendar says that the larva feeds between leaves of aspen.

Orthotænia antiquana, Hübn.—Prof. Zeller says the larva feeds in the roots of *Stachys palustris*.

Sericoris conchana, Hübn.—Dr. Wocke alters this to *rivulana*, Scop., which is certainly a much earlier name.

Sericoris lacunana, Dup.—Of this species, beautiful varieties occur in the fens of Norfolk, and they are noticed by Wilkinson in a note at the end of the genus (p. 275), where he says that they are dark cinereous or smoky-black. This is correct of some specimens, but others are coal-black with the markings indicated by lustrous leaden lines. I have reared these dark varieties along with the typical form from screwed-up leaves of *Spiræa ulmaria*. They have been erroneously placed, as Wilkinson says, in some collections under the name of *herbana*.

Sericoris herbana, Gn.—Incidentally noticed by Wilkinson (p. 275), but not described. Introduced by Mr. Doubleday into his List from specimens named for him by M. Guenée. One of these specimens, by Mr. Doubleday's kindness, I have had an opportunity of examining, and am convinced that it is merely a variety of *lacunana*. Guenée says "It appears at first sight allied to, or simply a variety of, *cespitana*; certainly more nearly allied to *lacunana*, and particularly distinguished from it by the pale colour of the under-side of the hinder part of the wings. The hinder wings are white beneath, sprinkled with dark colour at the apex.

"Taken in grassy places on the coast of Brittany."

Now, this whitish colour of the under-side of the wings is utterly unreliable as a specific character, but is rather a peculiar form of variation in this genus, seeing that it occurs frequently in typical *lacunana*, as well as in *rivulana*, *urticana*, and *micana*.

It would be presumptuous to say, without further information, that M. Guenée has not discovered a species in France distinct from *lacunana*, to which he has given this name, but I do not think that we have it in this country.

Sericoris rupestrana, Dup.?—Recorded as British, but hardly described, in the Ent. Ann., 1866, p. 165. Said to be common on moors in the north of England. This species has, however, been introduced into our lists in error, and for this error, my friend Prof. Zeller seems to be primarily responsible, since he sent, some years ago, a specimen agreeing precisely with our insect, under that name. He has since, however, received the true *rupestrana* from Vienna, and has sent me a specimen. It is a very pretty species allied to *rivulana* (*conchana*), but with narrower fore-wings and very neat markings. Its only known locality is Southern Germany.

I am decidedly of opinion that the insects which have been placed in our collections under this name are only dwarfed *lacunana*, but I give this opinion subject to correction, since Mr. Doubleday is not yet fully satisfied about either this species or *herbana*, and is inclined to think that even another species is separable from *lacunana* in this country. Further investigation is therefore desirable. At any rate, it is certain that so far from being constant, as Wilkinson says, *lacunana* is most variable in colour and in the distinctness of its markings.

Sericoris urtica, Hübner.

(To be continued).

ILLUSTRATIONS OF INSECT MONSTROSITIES. No. 1.—ON A
MONSTROUS STAG BEETLE (*LUCANUS ELAPHUS*).

BY PROF. J. O. WESTWOOD, M.A., F.L.S., &c.

In sending to the Entomologist's Monthly Magazine the first of a proposed series of notices of monstrous insects, it may, perhaps, be thought advisable that I should offer a few preliminary observations on this class of specimens, and upon the classifications that have been founded upon them. By those persons who, like myself, believe in the permanence of species, of course, every individual which differs in a more or less marked manner from the normal condition and appearance of the species to which it belongs must, strictly speaking, be considered as a monster; a term, however, which, in a scientific point of view, requires definition, since the amount of aberration from the specific type varies so greatly, that it has been proposed by some writers to restrict the term monster to those more important deviations by which the normal actions of the entire animal, or of some one or other of its organs, are materially affected.

Hence all those instances which readily occur to the mind of the student, and which are ordinarily termed varieties, resulting from difference of size, shape or colour of markings, and even the outline of the wings, or the alteration in position of the veins, the greater or less amount of punctures, or other variation of the sculpture, must be necessarily excluded from a memoir on monsters. The question as to the real position of certain varieties, which appear to assume a constant character, resulting either from variation in locality,* or times of appearance† has recently become one of much importance in reference to the possible formation of distinct local species.

We must, consequently, restrict our attention to those more decided cases of organic deviation from the structure of the type of a given species, which result in an incapacity for the due performance of the general or special functions of the individual, or of its special organs. It would be tedious to detail the systems of classification of monsters which have been, from time to time, proposed by Licetus, Huber, Malacarne, Buffon, Blumenbach, Bonnet, Meckel, Breschet, Illiger, Isidore Geoffroy Saint Hilaire (whose 'Histoire générale et particulière des Anomalies' is the great text work on the subject), or

* *Polyommatus Artaxerxes*, *Solmæis*, and *Agestis*, may be cited as an instance; a still more remarkable instance is presented by the varied forms of the females of *Papilio Merope*, in Madagascar and Africa, as proved by Mr. J. P. M. Weale (Trans. Ent. Soc. Lond., 1874, p. 131).

† A remarkable instance of this "seasonal polymorphism" occurs in *Papilio Ajax*, which, according to Mr. Edwards, appears in early spring, under a form which has been termed *P. Walshii*; in the late spring, as *P. Telamonia*; and in summer and autumn, as *P. Marcellus* (Scudder, in American Naturist for May, 1874).

the more recent observations of Asmuss and Lacordaire (whose classification given in his 'Introduction à l'Entomologie,' vol. ii, pp. 414—452, is founded chiefly on that of Saint Hilaire).

Setting also aside those monstrous hybrid creatures, which have resulted from the pairing of animals of distinct species, we find :—

First, a series of monsters, in which the characters of the two ordinarily separate sexes are more or less distinctly to be traced. These are the gynandromorphous insects, which have the body most commonly divided into two distinctly sexual halves, one side being masculine, and the other feminine.†

Secondly, we have a series of individuals with mis-shapen bodies or limbs, which have one or more of their organs of an unusual form or structure. These are the 'monstra per fabricam alienam' of the German authors, and form the section of 'Vices de conformation' of Lacordaire's system, and which are excluded by him from the real monsters.

Thirdly, the monsters which want one or more of the organs of the species, and which are the 'monstra per defectum' of the Germans or the 'monstres ectroméliens' of the French writers.

Fourthly, those individuals which have supplemental organs, or parts of organs, the 'monstra per excessum' of the Germans, and the 'monstres polyméliens' of the French.

Fifthly, those monsters which have two or more organs coalesced into one (monstres syméliens).

Sixthly, monsters which have the body open along a portion of its length (monstres par scission).

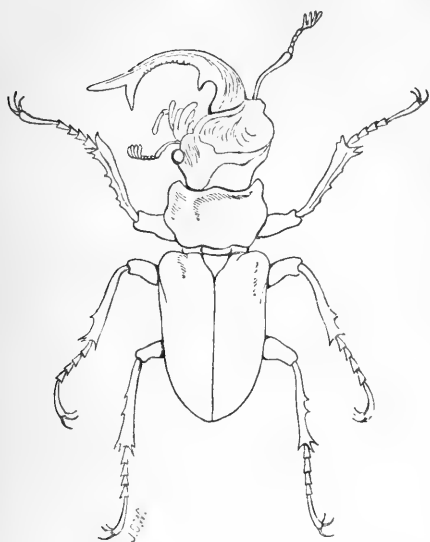
Seventhly, those insects which, in the imago, retain one or more of the organs of their preparatory states ('monstres par arrêt de développement'*).

The 'Anomalix magnitudinis' of Meekel, and the 'Monstra per colorem alienum' of Asmuss, appear to belong to some of the former groups—the gigantic or dwarfish condition of the animal being evidently a simple variation, the latter induced, in most cases, by insufficient food—whilst the different colouration of the opposite wings in *Lepidoptera* is often clearly the effect of gynandromorphism.

† A curious series of specimens, in which the additional sexual character occurs in only a single organ, or portion of a single organ, is represented in one of the plates of my 'Thesaurus Entomologicus.'

* In addition to the various instances recorded, in which the head of the larva has been retained in the perfect state, a case has been recently recorded by Mr. Butler, at the Meeting of the Entomological Society of London, May 4th, 1874, in which the right wings of the peacock butterfly, *Panassa Io*, were completely developed, whilst the left wings were undeveloped, the tail of the chrysalis having become detached during the process of emerging, and the butterfly not possessing the power to get rid of the left side of the pupa case. Another instance has also been recently recorded of a chrysalis of *Pontia rapce* found with the head case covered with the head case of the larva 'Poujade, in Bull. Soc. Ent. France [5], ii, p. lxxxiii'.

The insect represented in the wood-cut is a stag beetle (*Lucanus*



Elaphus, Fabr.), which was obtained by the late Mr. Raddon, with great numbers of other American insects, from skimmings of turpentine barrels, in London. It is a common North American species, and is clearly referable to the *Lucanus Elaphus* of Fabricius, being a specimen of the ordinary full size, and (except in respect of the head), must be considered as a male judging from the structure of the legs, both of the anterior tibiae being long and narrow, and neither of them short and broad, as in the females of that species. There is some slight difference in the strength of the spines of

the four posterior tibiae, the hind ones being destitute of the middle spines. Hence might arise the question whether the diminished size of the left-hand half of the head might not be due to an arrest of development, or to the importation into the specimen of so much of the female organization; the extraordinary development of the right half of the head has necessitated a partial twisting of the neck, and the structure and punctuation of the left hand half of the head and left mandible is evidently that of the female, as well also as the shortened left antenna. A memoir by myself on this and some other gynandromorphous insects was read at the Meeting of the Entomological Society on the 6th June, 1836, but it has remained hitherto unpublished, together with the figures with which it was illustrated. I find from my notes that the wings were wanting in Mr. Raddon's specimen, thus indicating a certain deficiency of organization, and that, on examining the internal condition of the abdomen (so far as could be done in the dried condition of the specimen), no traces of the large male organ were to be found, a pair of terminal lobes, only such as are to be seen in a female stag beetle, being perceivable. Figures of the under-side of the head, and of the terminal segment of the abdomen, will be given in my next article. I regret not to be able to state what became of the specimen here figured at the sale of Mr. Raddon's collection.

A monstrous specimen of *Lucanus cervus*, in which the left-hand side of the head is furnished with a long, but contorted male mandible, whilst the right mandible is short and triangular, like that of the female, was figured by Dr. Klug (Verhandl. d. Naturf. Gesellsch. Berlin, 1829, pl. iv, f. 1; copied by myself in Loudon's Mag. Nat. Hist. iv, p. 435), and by Asmuss (Monstros. Coleopt., pl. x).

Oxford: 8th June, 1874.

DESCRIPTION OF A NEW SPECIES OF CETONIADÆ.

BY D. SHARP, M.B.

AGESTRATA SAMSON, *n. sp.*

Suprà viridi-ænea, sat micans; subtus ænea, lateribus fulvo-maculatis; prothorace lateribus antice omnino immarginatis.

$$\begin{aligned} \text{♂} & \begin{cases} \text{Long. corp. 50 mm.} \\ \text{Lat. „ 23 mm.} \\ \text{Long. antennarum flabelli 6 mm. (vix).} \end{cases} \\ \text{♀} & \begin{cases} \text{Long. corp. 54 mm.} \\ \text{Lat. „ 24 mm.} \\ \text{Long. ant. flab. 5 mm.} \end{cases} \end{aligned}$$

Clypeus in front strongly punctured, its lateral margins but little raised, the teeth formed by these moderately long and rather stout. Thorax not so long as broad (its length along the middle 16 mm., its greatest breadth 19 mm.), its sculpture very fine; it has a fulvous spot at the exterior margin on each side, and the raised lateral margins are entirely wanting on its anterior half. The exposed portion of the scutellum is elongate and narrow. Shoulders fulvous. Elytra distinctly sinuate at the extremity, the sutural line dehiscent towards the apex, the apical teeth rather stout. Under-surface metallic, the sides of the breast and abdomen with fulvous marks; sides of the abdomen slightly punctured, but without any rugosities. Angle of the hind coxæ produced into an acute spine. Mesosternal process rather long and narrow, not dilated at the extremity.

Habitat, Silhet.

This fine insect is remarkable amongst its allies from its large size and broad form, and may be distinguished from the hitherto described species of *Agestrata* by the fact that the side margins of the thorax are quite wanting in the front part. The two specimens before me (♂ & ♀) differ in the colour of their legs; in the male individual, the femora are reddish, with a brassy streak along the middle, while in the female the hind femora are entirely metallic, and the red marks on the

other femora are much reduced in size. The tibiæ and tarsi are not in the least metallic, but are of a pitchy-red colour in the male, and nearly black in the female.

Besides the two specimens in my collection, I have seen three others placed as an undescribed species in the collection of Count Mniszech, from the same locality. Though I have not examined these specimens critically, I have little doubt they belong to the species here described.

Thornhill, Dumfries :

8th June, 1874.

DESCRIPTIONS OF NEW *LYCÆNIDÆ* FROM WEST AFRICA.

BY W. C. HEWITSON, F.L.S.

LIPTENA ADELGITHA.

Upper-side : ♂, dark brown, the fringe spotted with white. Anterior wing with a minute white spot near the middle of the costal margin.

Under-side : dark brown. Both wings with numerous spots of white : both with a sub-marginal series of white spots.

Exp., $\frac{1}{10}$ inch.

Hab., Gaboon (Rogers).

LYCÆNESTHES LYZANIUS.

Upper-side : ♀, dark brown, with several black spots and some indistinct white spots.

Under-side : white. Both wings crossed by several brown bands : both with two sub-marginal bands of brown, the band nearest the margin narrow and indistinct. Posterior wing with two black spots, bordered above with orange near the anal angle.

Exp., $\frac{1\frac{1}{2}}{10}$ inch.

Hab., Old Calabar.

Oatlands, Weybridge :

June, 1874.

DESCRIPTIONS OF THREE NEW BUTTERFLIES FROM COSTA RICA.

BY HERBERT DRUCE, F.L.S., F.Z.S.

PAPILIO SADYATTES, n. sp.

Upper-side, ♂, deep black. Anterior wing with a minute white spot below the

first median nervule close to the cell. Posterior wing with three unequal, sub-ovate, scarlet, opalescent spots, placed in the middle of the space between the discoidal and the first, second, and third median nervules.

Under-side brownish-black. Anterior wing with the white spot as above. Posterior wing with five pinkish-white spots between the nervules, the first two small, the fringe of both wings alternately white and black.

Exp. 3 inch.

Hab. Costa Rica.

In coll. H. Druce.

ERESIA COELA, *n. sp.*

Upper-side, ♂. Anterior wing black, a triangular white spot divided into four by the nervures beyond the middle of the costal margin, a small spot between this and the apex, and a sub-marginal band of six white spots, the third minute; a large round white spot close to the anal angle. Posterior wing rufous-orange, with the base and outer margin black, a sub-apical white spot, and a sub-marginal band of linear yellowish spots.

Under-side, the same as above, except that all the white marks are larger, and a yellow streak at the base of both wings, also a yellowish spot partly in the cell of the anterior wing.

Exp. 2 inch.

Hab. Costa Rica.

In coll. H. Druce.

MESOSEMIA CEROPIA, *n. sp.*

Upper-side, ♂, deep bluish-black, with the base of both wings blue. Anterior wing crossed beyond the middle by a band of blue, broadest near the costal margin; a narrow blue band close to the outer margin, broadest at the anal angle. The discal spot scarcely visible, with three minute white spots. Posterior wing with the outer margin broadly blue.

Under-side brown. Both wings with a discal spot (with three minute white spots in the anterior, and two in the posterior wing), bordered with orange, and crossed on both sides by two broken dark brown lines. A dark brown line crossing both wings near the outer margin.

Exp. $1\frac{3}{4}$ inch.

Hab. Costa Rica.

In coll. H. Druce.

On the under-side this species resembles *M. Mycene*, Hew.

1, Circus Road, N.W.: May, 1874.

Notes on rare Kentish Coleoptera.—My entomological doings, as far as Britain is concerned, being probably at an end for several years (as I leave England in a few days for the Mediterranean Station), I am induced somewhat prematurely to send a few notes on the more important species of *Coleoptera* I have met with since March last.

From the Isle of Sheppy, I have great pleasure in recording *Agriotes sordidus*, Ill., of which I found a single ♂ example in flood-refuse, in April. In May, I

obtained a clue to its habits; and, by dint of much labour, was so fortunate as to secure a considerable number, from under large loose stones on the shore, just above high-tide mark. With them were a few "wire worms," evidently the larvæ of this species, and (rarely) a reddish (but quite mature) variety. I am sorry to say that some of the specimens were abraded, the pubescence, so characteristic of the species when fresh, being exceedingly delicate and fugitive.

Among other species from the same locality, I may mention *Dromius vectensis*, Rye, in flood-refuse; *Harpalus rupicola*, under stones; *Stenolophus elegans*, a fine series in flood-refuse, in April; *Achenium humile*, not rare in flood-refuse and under stones; *Compsochilus palpalis*, Er., a single example, by promiscuous sweeping, at the end of May; *Nitidula rufipes*, a few in a dead bird; *Hister neglectus* and *bissextriatus*, *Syncealypta hirsuta* (all these three in great profusion), and *Sarrotrium clavicorne*, in flood-refuse; *Telmatophilus brevicollis* and *Limnichus pygmæus*, by casual sweeping; typical *Aphodius plagiatus*, in flood-refuse; *Cæliodes exiguus*, common on *Geranium dissectum*; *Ceuthorhynchus tarsalis*, on *Sisymbrium*; *Phlæophagus spadix*, one or two specimens picked up casually in different places; *Apion Schænherri* and *Hylesinus oleiperda*, by sweeping; *Hyperaspis reppensis* and *Scymnus Mulsanti*, basking in the sunshine on stones, &c.

The Chatham district has also yielded its fair share of good species, the following (of which several have likewise been taken by Mr. Champion, in my company) being the most noteworthy:—*Harpalus azureus*, running about in the sunshine; *Stenolophus flavicollis* and *dorsalis*, in moss, &c., in a wet place; *Ilyobates forticornis*, in flood-refuse; *Callicerus rigidicornis* and *Calodera umbrosa*, occasionally by sweeping under fir trees, also in a sand-pit; *Homalota scapularis*, a few by evening sweeping; *Tachyporus formosus*, Matt., several specimens in moss, and one by sweeping (hitherto only recorded, I believe, by the Rev. A. Matthews from a Midland locality,—I fancy Sherwood Forest); *Pæderus riparius* and *fuscipes*, in flood-refuse, and by sweeping, "grubbing," and cutting tufts in a marshy place, the latter species occurring in profusion; *Stenus major*, in flood-refuse (also not rarely at Faversham, in April, by cutting tufts of *Carex* in a wet place); *Bledius atricapillus*, in enormous numbers in a sand-pit, in April, the perpendicular sides of the pit being riddled with its burrows for yards together; *Oxytelus piceus* (♂), in flood-refuse; *Agathidium rotundatum*, in fungus; *Meligethes symphyti*, in flowers of *Agraphis*; *Cicones variegatus*, in a nest of *Formica rufa*; *Lathridius testaceus*, in some numbers in a very small quantity of brown powdery fungus (not unlike snuff) on rotten beech bark; *Aphanisticus pusillus*, by sweeping; *Mordellistena abdominalis* (♂), on umbelliferous flowers; *M. brevicauda*, common in buttercups, &c., on the chalk-hills; *Plinthus caliginosus*, not uncommon in moss; *Mecinus circulator* and *Gymnetron rostellum* (several), by general sweeping; *Ceuthorhynchus suturellus*, rarely, on *Cardamine pratensis*; *C. alliariae*, not rare on *Erysimum alliaria*; *Ceuthorhynchideus hepaticus*, *nigrinus* (in profusion), *terminatus*, *Chevrolati*, and *versicolor* (not rare), by sweeping under fir-trees, &c.; *Apion filirostre*, *Cissophagus hederæ*, and *Cryptocephalus lineola*, by general sweeping; *Chrysomela gættingensis*, in a sand-pit; *Phyllotreta sinuata* (♂) and *Thyamis distinguenda*, Rye, by sweeping; *T. agilis*, Rye, variety with dark suture, on *Scrophularia aquatica* growing in a wet place (unfortunately, this insect only too well merited its specific name, as of several specimens netted by Mr. Champion and myself, all but one effected their escape); *Cassida vittata*, two or three in moss; *C. sanguinolenta*, by sweeping.

Near Faversham, on May 30th, I fell in with *Rhinocyllus latirostris*, in profusion on the heads of a few thistles growing in a wood, on dry chalky soil, and miles away from the coast, to which I had imagined that this fine weevil was confined. On the same day I took *Aspidophorus orbiculatus* (not rare), *Liosomus oblongulus* (♂), *Gymnetron rostellum*, &c., by sweeping.—JAMES J. WALKER, R.N., 7, West Street, Blue Town, Sheerness: June 8th, 1874.

Capture of Aphodius villosus.—I have had the good fortune to meet with a considerable number of this insect, in a chalk cutting at Freshwater, Isle of Wight. They were chiefly crawling over the clean chalk, and I could discover no clue to their proper habitat. It is evidently a June species, as I have just noticed that Mr. Sidbotham's record in this Magazine, for 1868, of the capture of this insect in Wales, bears the same date as my own.—CHAS. O. WATERHOUSE, British Museum: June 16th, 1874.

Notes on Oxyura and other Hymenoptera.—Although I only commenced the study of *Hymenoptera* in March last, I am induced to offer a few observations from seeing what a wide field of research is open for any one who will engage in this branch of entomology. Up to this date, I have had only about twelve hours of actual field work; yet of seventeen species sent by me to the Rev. T. A. Marshall for inspection, seven are certainly rare, and some new to England, if not to science.

The following names of some of my captures, given by Mr. Marshall (for whose ready and patient assistance in the minutest details of all my requirements my best thanks are due), will at once show how much may be done by quite a tyro:—*Ceraphron palli(di)pes*, new for England; *Hyperbaeus seminulum*; *Thoron metallicus*; *Cosmocoma fuscipes*; *Prosacantha brachyptera* (or *rufipes*), *pedestris*, and two doubtful species; *Aclista* sp.? It should be borne in mind that these were all taken in three expeditions before the middle of April. Since then, I have been taking dozens, which still remain unnamed, owing to my want of knowledge. In fact I take enough in two hours to occupy my evenings for a week in setting them, and it seems a great pity that there should be so few workers in this branch of entomology.

On the *Cynipidæ*, these few notes may be of interest. By far the majority of galls of *C. lignicola* on the oak scrubs in the ravines on Wimbledon Common appear to contain inquilines. I gathered forty galls, choosing several small ones, and having thirty-one still entire. Out of the other nine, I have obtained the following:—of a species of *Callinome*, seven; of another, *Chalcis*, three; of a third, two; of *Decatomus biguttatus*, two; of a *Synergus* (two species), over twenty-four, of which sixteen came from one gall of the smallest size; and another *Synergus* which looks like a new species. Of the two first mentioned *Synergi*, Mr. Marshall writes that they are either new or cannot be identified. I opened the small gall which contained the sixteen *Synergi* after twelve had come out, and found the other four each wrapped in a thin silken film; on opening this, I found them quite dry within. They could fly almost at once. I also detected a *Callinome*, ♂, in the act of escaping from a gall. The hole was not quite completed at the orifice; there was a cold wind, which suggested that the insect was waiting for sunshine; but within, the insect was dry, and had its wings fully expanded.—A. O. WARD, 10, Stratford Grove, Putney, S.W.: 15th May, 1874.

Description of the larva, &c., of Boarmia roboraria.—I am indebted to Mr. W. H. Harwood for repeated help in rearing this species, enabling me at length to offer an account of all its stages. With larvæ sent in 1868, I failed entirely, but succeeded much better with eggs in 1871; and this past spring, I have again been furnished with a larva after hibernation, in order to make sure of one or two points.

The eggs reached me on July 5th; the larvæ were hatched on 15th, and I soon put them outdoors on a young oak; when about three-quarters of an inch in length they hibernate, taking up a position on a twig, and remaining motionless as if growing from it; about the end of January, 1872, I found them gnawing the bark of the twigs, and this they did at intervals till they had barked all the twigs of their oak-plant, and checked the development of the buds; so that on looking at them about the end of March, I found some dead from starvation, and the survivors looking shrunken: I now put them on a fresh plant, the leaves of which had been forced, and on these, as well as on the tender green stems of the new shoots, they fed well, becoming full-grown towards the end of April or beginning of May; the moths appeared between June 5th and 12th.

The egg, as is the case in this genus, is small in proportion to the moth, of flattened oblong figure, one end blunter than the other; the shell down the sides reticulated in regular rows of four-sided meshes, with knots or little knobs at the angles, and generally one or two extra on one of the four sides, as though the shape were meant to be a pentagon or hexagon; at the ends the meshes are pentagonal or hexagonal, with the knots in their proper places; the colour of the eggs when received was dull greenish, one end becoming deep pink, the little knobs being white; at last, the whole egg became dark brownish. The newly-hatched larva is without humps, in colour pale green, broad dark brown lateral stripe, head pale reddish-brown. The first moult takes place in about a week, and the young larva comes out with indications of a hump on sixth segment; the colour pale ochreous on back, lateral stripe pale brown, spiracular stripe pale ochreous, belly darker.

After this, the larva gets darker in colour, and attains a length of about three-quarters of an inch before hibernation; the head is now notched, and large for the size of the body, the ventral and anal pairs of legs are also large; the sixth segment puffed, and bearing two transverse humps on the back; the seventh with a pair of ventral warts; the twelfth with a transverse dorsal ridge bearing a pair of warts. The colour a dull purplish on the back, the belly paler and more brownish, the folds, humps, and ventral and anal legs all dusky grey; the head ochreous, freckled with brownish; at the folds, a slight dorsal pattern, viz., a blackish spot with an ochreous spot on either side.

After hibernation it moults once, and then feeds up. The full-grown larva is about one and three-quarters of an inch in length; from above it appears of about uniform bulk throughout, except at the sixth segment; but sideways it appears stoutest at the ninth and tenth segments; the head is narrower than the second segment, flattened in front, notched on the crown, the lobes rising in conical prominences; the sixth segment very much swollen on the back and sides, and bearing a pair of puckered sub-dorsal humps; the swelling begins just below the spiracle, which is thus lifted considerably above the level of the spiracles of the other segments; the seventh bears on its belly a pair of transverse puckered humps, in some specimens looking more like two sets of warts—three in each; the twelfth has a slight transverse dorsal

ridge bearing a pair of warts : in some specimens, also the fourth bears a pair of three-lobed, transverse, sub-dorsal humps ; the front pairs of legs on segments three and four are well developed, as well as the ventral and anal pairs ; the anal flap triangular, somewhat rounded at the tip, the 13th (under the flap) ending in two bluntish points, with a shorter, sharper one between them ; the skin glossy, but wrinkled on the hinder part of each segment.

The ground colour is generally purplish-brown, sometimes more cinnamon-brown, the folds and humps dark brownish-grey ; there is not much pattern, and different individuals vary in the amount of patches of paler colouring, some having broad patches of cream colour in the spiracular region of the fifth and tenth segments ; the sixth sometimes tinged with rust colour ; the dorsal line appears as a palish dash on the front of each segment, and a spot just at the end ; similar pale spots are sometimes seen where the sub-dorsal line should be on the sixth and ninth segments ; the head brownish ; the spiracles dirty-white, outlined with black. The whole appearance of the larva, both in outline and colour, is extremely suggestive of an oak twig, and it preserves the resemblance under one or two changes of attitude ; sometimes standing stiffly out, with the body in a straight line up to the eighth segment, then the seventh bent slightly upwards from this, and then from the sixth to the head again in one line ; the head and thoracic segments and legs more or less "bunched" together ; sometimes standing off at a wider angle from a twig, and then with the whole front of the body from the sixth to the head inclined—in a stiff line—towards the twig again ; in this position, it looks like what had been a forked twig, with one of the forks broken off : in walking, its humps lose much of their prominence, and then it looks much like other stout Geometers.

The pupa is enclosed in a slight cocoon, placed just on the surface of the soil, and formed by drawing together moss, &c. ; it is about three-quarters of an inch long, cylindrical, the thorax and upper part of abdomen stoutish, the lower part tapering off rapidly ; the wing cases granulated and dull, the abdomen glossy ; the whole pupa skin sparsely set with fine bristles ; the anal spike triangular, flattened, and ending in a long fine spine, barely bifurcated at the tip ; colour a very dark brown, with the abdominal rings reddish.—JOHN HELLINS, Exeter : 30th May, 1874.

British Hemiptera : memoranda for residents and tourists.—

Calyptonotus quadratus, a terrestrial species.

Lygæosoma punctatoguttata, gregarious at the roots of the foxglove. *L. reticulata*, also gregarious about several low plants.

These are all common in the Channel Islands. The first is very rare in England, the other two not hitherto found in Britain, but all may reasonably be expected to occur in the Southern Counties.

Nysius jacobææ, Schill. (*fragariæ*, Boh.), which is found throughout Europe, and frequents the wild strawberry ; should surely be found in Britain. It usually occurs in the brachypterous form, and in this state was once found numerous in Switzerland by Meyer-Dür, who, at the time, thinking the examples were only undeveloped *N. thymi*, took only a few, and did not find out his mistake until it was too late to get more.

Eremocoris plebeius is only known as British by a solitary example from Scotland. It is found in Germany and the North of Europe among the roots of heather (*Calluna vulgaris*).

Of the genus *Ophthalmicus* three species are noted by Dr. J. Sahlberg as having been taken by him as far north as Karelia; one of them (*O. pygmæus*, F. Sahlb.) plentiful among heather in August. The genus is hitherto unrepresented in Britain, although many species inhabit the Continent, and some *must* be here.

Tingis pyri lives on the leaves of pear trees throughout Europe, often in such numbers as to occasion detriment to the trees, and hence known to French horticulturists by the name of "le tigre." It is reputed to have been found in Britain, but I have never seen a native example.

Monanthia (Platyphila) pilosa, Fieb., is recorded as having been found in France on the white horehound (*Marrubium vulgare*) in July (E. Perris, Ann. Soc. Ent. France, iii, 76, 1873), and probably only wants to be looked for here in order to be added to the British list.

The above are a few of many species of *Hemiptera* that may reasonably be expected to occur in Britain; the casual captures by the collectors of other orders in fresh or out-of-the-way localities may soon, I hope, include at least some of them, or perhaps others of the numerous species that inhabit the Continent, and are not debarred by any known cause from being resident here, but have not hitherto been claimed as Britons.—J. W. DOUGLAS, Lee: June, 1874.

Additional notes on the egg-laying, &c., of Acanthosoma griseum.—I have been hoping for some time that I should see some notice of this species from the pen of some one who had studied the *Hemiptera*, but failing this, I thought I would copy out at full my notes made in 1871, of which I gave a very short abstract at page 13 of Vol. ix of this Magazine.

On June 4th, 1871, I noticed an *Acanthosoma griseum* on one of the lower branches of my birch-tree, apparently engaged in extracting some nourishment from the catkins; she seemed quiet, and the under-side of her abdomen, near the tip, had a greenish tint, suggestive of a batch of eggs soon to be laid; I saw her again on the 5th, a little way off from her previous position, and again I found her on the 6th very near the same spot; at 3 p.m. on that day I looked again, and found her close to where she was on the 4th, and now engaged in laying eggs on the under-side of a leaf. I did not see an egg actually extruded, but I saw the whole batch gradually placed in order.

She began by depositing one egg, then a row of two or three, then about five, till, at the widest row, there must have been seven or eight; then she diminished the rows again till she came to a point, the whole mass, in number between thirty and forty, forming a rough diamond figure just about the size of her own body. The outer eggs were laid on their sides, the inner ones stood up on end. I detached one and examined it with the microscope, and found it long in shape, twice as long as wide, plump, a little depressed on the sides, reticulated all over very faintly, somewhat glossy, and in colour pale whitish-green. The mother now took her stand over these eggs, but I do not think her body touched them; towards the end of June I noticed that the side of the eggs nearest the sun had become yellowish, and, on the 29th, I found the young bugs all hatched, and clustered under their mother amongst the empty egg-shells; they were yellowish-green in colour, their thoraces becoming darker than the abdomens, and I saw them moving their antennæ.

On July 3rd I found them showing a red streak down the middle of the abdomen, and, on the 6th, they had moved from among the egg-shells, and were got together by themselves. About this time the wind was occasionally rough, and I think was the cause of some of them disappearing, for I could not find that they moved away of themselves, and so concluded that they had been blown or shaken off their leaf. On the 9th I found them moulting, and saw some of them kicking away their cast skins behind them; their colours were bright at first, yellow with vermilion stripe, and they soon began to move about more freely, and on the 13th migrated—now with sadly diminished numbers—to a neighbouring catkin. I now packed up the mother with eight young ones, and despatched them to Mr. Douglas; but, unfortunately, he was from home, and returned only to find their dead and dried bodies.

I fancy it might be a good plan to beat birch-trees for the impregnated females towards the end of May, and if any were taken, they might possibly be induced to lay in confinement, by furnishing them with fresh birch twigs in a bottle of water, enclosed in a glass cylinder.

I do not think the female feeds whilst brooding over her eggs or young, so that she need not be disturbed till the latter have been hatched for a day or two, when perhaps a fresh twig might be placed close at hand for her to move to if so inclined.
—JOHN HELLINS, Exeter: *June 2nd, 1874.*

Reviews.

FAUNA AND FLORA OF NORFOLK: Part v, LEPIDOPTERA, by CHARLES G. BARRETT (Transactions of the Norfolk and Norwich Naturalists' Society, 1873-4, Supplement); pp. 1—80. Fletcher & Son, Norwich, 1874.

It is not often that we have had the pleasure of analysing so complete and valuable a local list as this. Too frequently such lists consist of mere catalogues of names, and bear internal evidence of untrustworthiness; or, if tolerably complete in the *Macro-Lepidoptera*, the "Micros" are usually conspicuous by their absence. All who know Mr. Barrett will bear willing testimony to his indefatigable industry and powers of discrimination and observation; and English entomologists in general (and those of Norfolk in particular) will remember with satisfaction the fortunate chance that caused him to be located in the city of our eastern counties for several years. This is *not* a mere list of names; the localities are copious, and no opportunity is lost of giving lengthened notes on the habits of the species, with indications of extensive literary research into all that has been written concerning the *Lepidoptera* of the county. 1240 species are enumerated, a very large number, considering that for the Micros the compiler had to rely almost entirely on the results of his own observations. We heartily commend this work to the notice of British Lepidopterists.

The "Transactions" of the Society (of which Mr. Barrett's list forms a separate supplement) for 1873-4, contain some useful hints on breeding *Lepidoptera*, by Mr. Wheeler (but we are sorry to see that the writer dispenses with generic names), and notes on the nidification of *Prosopis*, by Mr. Bridgman.

NOMENCLATOR ZOOLOGICUS, continens nomina systematica generum animalium tam viventium quam fossilium, secundum ordinem alphabeticum disposita: sub auspiciis et sumptibus C. R. Societatis zoologico-botanicæ conscriptus a COMITE AUGUSTO DE MARSCHALL; Vindobonæ, 1873, pp. 482.

In 1848 was published the well-known "Nomenclator" by the late Professor Agassiz, enumerating the names in use from the commencement of the system up to 1846, amounting to about 31,000; but for some years it has been practically impossible for a zoologist labouring under the necessity of coining a new generic term, to be certain that his proposed name was not already in use. It was, then, with great satisfaction that zoologists, heard, a few years since, that a continuation of this work up to the year 1868 was in preparation by Graf Von Marschall in Vienna. This has at length appeared, and contains, at a rough estimate, about 23,000 additional names, bringing the total to the alarming number of 54,000. This continuation is a great boon, and, even if there be errors of omission (things nearly impossible to avoid in a work of this nature) the compiler deserves, and will doubtless receive, the thanks of all working zoologists. Since the year 1870, an index of new generic names has been added to the vols. of the "Zoological Record," so that now there remains only 1869 absolutely unaccounted for (and a list of the new genera for that year will, we believe, be added to the next volume of the Zool. Record). As a reference for generic names only, it would, perhaps, have been better if the work had taken the form of Agassiz's "Index Universalis," *i. e.*, an alphabetical list from beginning to end, but the compiler (who gives a publication reference and date in each instance) has adopted the classified plan; there are thus 22 separate alphabetical lists to wade through instead of one only, and as all names are inserted precisely as published, without any grammatical or orthographical emendations, a zoologist who respects the letter H must also search through the vowel initials of the 22 sections before he can always be sure that his proposed term will run the gauntlet of criticism. The number of absolutely "nonsense-names," evidently formed without the slightest attempt at meaning, is enormous, and the greater part of these are found among the various orders of *Insecta*, the chief coiner of them being a well-known English writer. A glance shows, also, that, for want of a guide such as this, the number of instances in which the same name has been used two or more times, even in the same order, is very large. With neither time nor space for an extended analysis, we conclude by recommending the book as a monument of laborious research of a nature that few could be found to willingly undertake.

PSYCHE; organ of the Cambridge (Mass.) Entomological Club. Edited by B. PICKMAN MANN. No. 1; May, 1874.

The 'Club' under whose auspices this quarter-sheet is issued, appears to number about twenty-five members among which are several names well known and honoured in entomological science. A first number of any periodical of this nature is scarcely a fair subject for criticism; but on a future occasion we hope to feel called upon to give a more extended notice. Our present notice shall be limited to praising the proposed plan of giving monthly notes on the bibliography of all that concerns American Entomology, and to discouraging the attempt initiated to apply 'English' (or 'common') names to North American butterflies. Our American

cousins will do well if they avoid the vices of their ancestors in the old country ; and they may receive our assurance that the proposed practice, instead of advancing entomological science, will, in the long run, have the opposite effect.

ENTOMOLOGICAL SOCIETY OF LONDON: *May 4th, 1874.*—Sir S. S. SAUNDERS, President, in the Chair.

The Entomological Society of the Netherlands presented a finely executed medal struck in honour of Dr. Snellen von Vollenhoven on his retirement from the office of President, which he had held for twenty years.

G. T. Porritt, Esq., of Huddersfield (already a Subscriber), and Herbert Goss, Esq., of Brighton, were elected Members.

Mr. Butler exhibited an example of *Tanessa Io* bred from the chrysalis, shewing an arrest of development, the wings, &c., on one side being perfect, whereas, on the other side, they were aborted and shrivelled, with the pupa-case still attached. He considered this due to the fact of the pupa having become detached during the metamorphosis.

Mr. W. C. Boyd exhibited a specimen of a *Solenobia* from St. Leonard's Forest, which was taken with ordinary *S. inconspicua*, and might be an albino variety thereof, but of very different appearance from the ordinary form. He also exhibited several leaves of *Symphytum officinale* recently gathered, on the under-side of which was a dense mass of dead or moribund examples of *Brachycentrus subnubilus* nearly covering the surface. All the insects (with perhaps a single exception) were males. Upon these leaves there were probably several hundred examples. No obvious reason could be suggested for this assemblage.

Mr. Stainton remarked that there were many such unaccountable instances of a habit of congregating in insects, and reminded the meeting of a fact known to all breeders of *Micro-Lepidoptera*, concerning the pupation of most species of the genus *Nepticula*, the larva of which were comparatively solitary, mining in leaves ; but if a number of mined leaves, containing larvæ, be collected and placed in a box, it is found that the cocoons are constructed gregariously between certain of the leaves, with no apparent reason for the preference. He illustrated the habit by comparing the mass of mined leaves in a breeding box to those of a book, between only a few of which the accumulated pupæ would be found.

Mr. C. O. Waterhouse exhibited a beetle of the genus *Sinoxylon* (*Bostrychidæ*) sent from British Burmah by Dr. Lamprey of the 67th Regiment, which, according to him, had the habit of boring into small stems, and then eating the wood completely round within the bark, so that it became entirely detached by the first gust of wind ; portions of small stems thus severed by the beetle accompanied the exhibition.

Mr. McLachlan said he had to correct an error into which he had fallen when exhibiting at the meeting on the 7th July, 1873 (*cf.* Ent. Mo. Mag. x. p. 72 ; Proc. Ent. Soc. 1873, p. xxiv.) an insect of the family *Syrphidæ* as gynandromorphous. Mr. Verrall, who had examined it, said it was a male of *Chrysotoxum festivum*, and that the apparent asymmetry of the genital apparatus was usual in that species, as also in other *Syrphidæ*.

Part ii. of the Transactions for 1874 was on the table.

LIFE HISTORY OF *MELIGETHES*.*

BY ELEANOR A. ORMEROD.

In the spring of 1872, I was requested by my friend Mr. Andrew Murray to make some observations on the development of the genus *Meligethes*, for which my residence in the country and sufficient leisure seemed to give me some advantages.

Mr. Murray had already (Trans. Linn. Soc.) monographed a portion of the family of *Nitidulidæ* to which *Meligethes* belongs, and had devoted considerable study to that genus itself, with a view to the continuance of his monograph. In the meantime, Herr Edmund Reitter of Paskau had, for the first time, published (Brunn: 1871) a monograph of the European species of the genus, describing as many as 99 (of which 76 had been recognised by various previous authors), and to which nearly a score more have been added subsequently by Herr Reitter and M. Ch. Brisout. As the characters of such a large number of species in a genus of singularly uniform aspect are necessarily very minute, Mr. Murray was anxious to find what amount of individual variation (if any) took place in the broods of any one of them, and so asked me to assist him in ascertaining this point.

In this respect, however, my observations were not productive of any result, but, in another point of view, they may perhaps be of interest to entomologists; for it is unnecessary to say that I could not make the researches required of me without rearing and breeding the insects, and, consequently, I was compelled to study their whole life history from the egg to their perfect development. So far as I know, their early history has never previously been described in this country; the larva and pupa are known, but beyond that I believe their life history is a blank, which I shall endeavour to supply by the following notes.†

The species which I studied were the large *M. rufipes* and the common green *M. æneus* and *viridescens*; but, as the two latter of these vary considerably in colour, and hundreds of them passed under review, it was impossible to ascertain (whilst watching their habits in a state of liberty) whether some specimens of the *viridescens* were not mixed with the *æneus*, and I have therefore simply designated both throughout as "the green *Meligethes*," though, as far as careful observation went, they were entirely *æneus*.

* Read by Andrew Murray, Esq., F.L.S., at the Meeting of the Kensington Entomological Society in May, 1874.

† Since the above was in type, I am indebted to Mr. Rye for drawing my attention to the publications of Ernst Heeger (Sitzungsber. Akad. Wissensch. Wien, xiv, Heft 2, 1854, pp. 278-281, pl. iii, figs. 1-10), G. Künstler (Die unseren Kulturpflanzen schädlichen Insecten, &c., 1871, pp. 46 and 47), and J. H. Kaltenbach (Die Pflanzenfeinde, &c., 1872), as recent continental writers on the life-history of *Meligethes æneus*.—E. A. O.

My observations were made at Sedbury Park, in the west of Gloucestershire, and began about the 22nd of May; but the season was backward both as regards plant and insect life, so that the date in ordinary seasons would probably range rather earlier.

The first species that I noticed was *M. rufipes*, abounding then on the hawthorn blossoms, but of the individuals of this I only noticed especially the dexterity with which they buried themselves when in confinement, and that none of the specimens which I then opened showed the presence of eggs.

About June 6th, the brassy-green *Meligethes* were to be found in considerable numbers on the inflorescence of cultivated *Cruciferae*, apparently feeding entirely on the pollen, and indifferent whether they gnawed it direct from the anther, or swept it with their jaws from where it chanced to have fallen on the surface of the leaves, or each other's backs, and also collecting it in masses on the frontal portions of the head, by drawing the tibiæ laden with pollen (which seem as if purposely formed for collecting it) through the mouth appendages. On opening the abdomen of some of the *Meligethes* infesting the turnip plants, I found that eggs were formed, usually only two in number, but occasionally four.

On the 14th of June, examining some turnip stalks in flower, I noticed a considerable number of larvæ amongst the filaments and apparently injured buds, and sometimes as many as five of these larvæ in one flower. They were very active, and their method of progression, with the assistance of the caudal proleg, vigorous, and characteristic, by taking a few steps in the ordinary way, then giving a sudden and most energetic twist of the tail forward with a sweep to one side, and, after securely fixing the caudal foot, proceeding as before.

On the 15th to the 17th of June, similar larvæ were to be found in profusion on turnip and cabbage blossom haunted by the green *Meligethes*, the larvæ usually spotted, and so transparent that the contained matter might be seen moving about internally in globules.

The larvæ were usually to be found in the buds and partially opened flowers, distinguished by a shrivelled and stunted appearance; in the stamens and petals the distortion of the flower being, in all probability, owing to the partiality of the larvæ for gnawing at the base of the blossom.

In one case, I watched a larva with its jaws applied to the same spot for upwards of two minutes, and working with such energy that the jerk with which it pulled from time to time was distinctly visible, but I was never able to detect that solid matter was removed.

Up to this time I was unable to find an egg on the flowers or stamens, but the frequently diseased state of the anthers, added to the fact of my once finding half an anther completely occupied by one of the larvæ, suggested the possible locality, more especially as the anther was occasionally swollen in one place, so as to have a completely gall-like appearance.

On the 17th of June, I found, on growing rape plants, great quantities of these larvæ, now more opaque, with (in some cases) a brown appearance along the back and the spots no longer visible, collected together in parties of as many as one to two dozen at the base of the pedicels of the topmost flowers, on the sprays of which the blossoms were now withered; others of the larvæ were distributed variously, but chiefly on the seed-pods, where the gnawing motion of the brown jaws might be clearly distinguished against the light colour of the vegetation; these larvæ appearing to absorb the plant juices with their mouths rather than to eat the solid substances.

Some of these rape sprays I planted in earth in a flower-pot with their adhering larvæ, as also some sprays of withered turnip blossom, on which similar parties of four to seven larvæ were collected at the base of the pedicels of the topmost flowers, putting the rape and turnip sprays in separate pots, each pot in a bowl of water to secure dampness.

At about a quarter to nine on the evening of the 17th of June I found the larvæ on the rape stems burying themselves as fast as possible in the earth. They appeared to drop, not to crawl down the stem, and then rapidly crawling over the surface of the earth, buried themselves head foremost as fast as they could. Of about forty or more larvæ which were on the shoots in the evening, I did not see one on the following morning, and the turnip larvæ disappeared at the same time.

The dropping of the larvæ from the spray appeared to me to be caused by an alteration in the shape of the caudal proleg, which, ceasing to be serviceable to its proprietor, obliged the larva, whether so inclined or not, to fall from the position no longer suitable to it into the locality requisite for its further existence.

On the 7th of July, noticing that the very heavy rains had washed a number of the larvæ from the flower-pot in which the turnip grubs were confined, I turned the ball of earth out on my hand, and found, near the bottom of the pot, a small beetle-pupa of a white colour with reddish-brown eyes, and of obtuse oval shape (undoubtedly a *Meligethes*), the creature apparently in vigorous health. It lay in a little earthen

cell, just like those of *Balaninus glandium*, only on a smaller scale, with a few other similar pupæ in the flower-pot, about three and a half or four inches below the surface of the ground. The outside time occupied in the pupal change was approximately three weeks; but it was impossible to tell the time that had been required with accurate precision, as the larvæ did not bury themselves quite at one time, and the pupæ were fully formed when noticed on the 7th July.

Returning now to a point passed over for the sake of presenting the observations with some degree of continuity. Up to June 17th I had not been able to discover the *Meligethes* eggs; but, finding in rape that I was specially examining that there were larvæ of most minute size in the buds, I went on opening the undeveloped blossoms till I came on two eggs in a rape bud, one egg placed on an anther, the other dropping out from the bud as I opened it, these eggs corresponding in colour, shape, size, and texture with the eggs of the *Meligethes* of which I had specimens laid by the beetles under careful inspection.

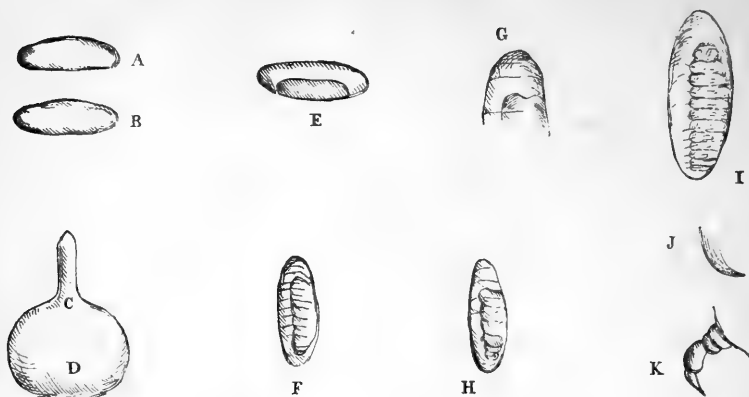
One of the eggs I found in the rape bud appeared opaque in the middle, as if the future larva were partially formed: this was in the evening, and the next day, about 1.30 p.m., I noticed a discolouration at one end of each of the rape eggs resembling the head of the contained larvæ, showing through the pellicle of the egg. About 5.30 p.m. I found one egg empty, the other appeared only as an empty shell, and on the bud were two minute larvæ exactly resembling those of which I had examined so many lately.

These observations were made upon the insects in their natural state, and without any artificial restraint; the following were made upon the insects placed in confinement, and under constant observation:—

On June 19th, I imprisoned some of the perfect insects under a small bell-shaped glass, fitted on a cork base, and with a stopper removable at pleasure, so that I could watch the inmates and supply what might be necessary without materially disturbing them. Next morning (June 20th) a few eggs were visible, and later in the day a few more, but, on the following day, some of the eggs were missing; and, conjecturing from the fragments lying about that the *Meligethes* had been feeding on their own eggs, I removed the beetles from the glass.

These eggs were similar to those found in the rape buds, the shape slightly variable, and appearing to me to vary with the state of

development of the contained embryo; but in both cases I found



eggs of the shape sketched A and B, that is, narrowly ovate, about twice as long as their own width throughout, and with the two extremities obtuse.

The ovipositor of the female *Meligethes* is so enormously distended by the egg, that till seeing its exit, it is almost impossible to believe it could find a passage: the proportion might in diagram-form be conveyed as in the cut—C, channel of exit; D, distended mass above.

On the 21st of June, the day after the deposit of the *Meligethes* eggs, the commencement of the development of the contained larvæ was perceptible as a misty substance nearly filling the egg (see E in cut).

On the 23rd, the larval shape was more defined, the egg showing as clear at each end, and on one side, and the contained embryo as an obtuse oval form occupying about two-thirds of the length and breadth, and lying against one side of the containing pellicle.

On June 24th, that is, four or five days after the laying of the eggs, several of them hatched, and I could see no difference between the specimens of the larvæ hatched from these eggs procured immediately from the imprisoned beetles and those previously examined on the infested rape plants, and in their habits also the resemblance was to be found. The caudal foot was used for assistance in progression, and the newly-hatched grub fed greedily on the anther of the rape.

In another series of observations, the parents were imprisoned on June 26th, and on July 2nd, as the eggs were beginning to hatch, I placed one on a microscope slide for continuous observation under an object glass of one inch focus.

The first observation taken at 8.22 a.m. on the 2nd of July,

shewed the larva occupying one side of the egg as previously described, the extremity marked F in the cut perceptibly moving to and fro in the egg. 10.20, as an opaque object, the ring-like banding of the egg now showed noticeably. 11.6, the portion of the larva (G) now showed its figure plainly. 1.22 p.m., the lower extremity now showed as at H. 3.57 and 4.8, no special change. 9.55, the larva was now almost constantly thrusting its smaller extremity backwards and forwards, a movement of this portion having been noticeable at intervals all day.

July 3rd, at 7.57 a.m., the head of the larva was visible in the egg, also a row of spots indicating about nine of the larval segments, and the tip of the caudal extremity was still moving. 8.8 a.m., the head showed plainly (of a purple colour), and the outline of the segments was also clearly visible nearly up to the tail, with a spot of transparent appearance on each segment; the tail did not yet show its form clearly. 8.30, the bristles on each of the segments of the larva now showed plainly on the one side exposed to view. 8.39 a.m., I in cut. 9.23 a.m., the larva was now coming out of the egg, arching up the middle of its back in its struggles, and the head and tail appearing forced to the extremities of the egg. At 9.26 the larva walked out of the egg head foremost, transparent and colourless, save two brown spots, which I presumed to be the eyes. 9.29, the larva now appeared to be about one-third longer than the egg it had just quitted. 12.40 p.m., the head of the larva had now re-assumed a purple colour, and purple spots showed on the first three segments, the colour of the spots being paler than the head, and getting gradually paler on the other segments to the tail.

When full grown the larva is yellowish-white with brown jaws; but in its early stage, its appearance is as follows:—general colour whitish, head transverse, triangular, broader than the succeeding segments, dark shining purple, with depressed wrinkled line down the centre and white line across bending upwards, so as to form a shield-shape marking pointing towards the top of the head. Segments with purple spots paler than the head, the segments immediately behind the head with two purple patches reaching nearly to the middle of the back, the succeeding segments with one spot on each side, the three preceding the tail with an additional one in the centre, and the tail itself with the three spots confluent and purple tips to the lobes. Legs purple. Jaws sharply pointed and much curved, slightly over-



lapping each other at the tips (J in cut). Antennæ four-jointed (K in cut). Each lobe of the tail with two bristles, and the other larval segments with one on each side, excepting the segment immediately behind the head, which has on either side two bristles or more.

This description was taken from a larva still of such minute size as to be barely perceptible to the naked eye, and (presumably) not more than twelve hours old.

In the above recorded investigations, a few points struck me particularly: the first being the coincidence between the duration of the life of the larvæ and that of the flowering stems on which they were placed. Next, the apparently enforced *dropping* down of the larva when its time of feeding was complete; from the size of the plants compared with that of the insect, the journey would have been one of enormous length, and without provision, by the way, the hardened stem not affording the little collections of sap in which the larvæ appeared to delight. Another point was the position of the larva in the egg. From the great relative size of the portion (about the third or fourth segment) in the egg which, until almost complete development, represented the extremity opposite to the head, I think that until almost the time of hatching the larva lay bent on itself, and then suddenly straightened itself, throwing the head into the natural position. The fourth point was the colour (in the egg, and from a few hours after hatching, the larva showed patches of purple colour) as it stepped from the egg, and for a few hours these parts, as the insect generally was quite white. Possibly this is well known in other cases, but I do not myself understand the reason of it.

Torquay: *March 2nd*, 1874.

ON TWO NEW COLEOPTEROUS INSECTS BELONGING TO THE FAMILY *RUTELIDÆ*.

BY CHAS. O. WATERHOUSE.

RUTELARCHA, *g. n.*

Closely allied to *Rutela*, but separated by the following characters. Antennæ with the basal joint thick, the second smaller, the third to seventh gradually decreasing in size, the eighth to tenth forming an elongate club. Clypeus separated from the head by an impressed line. Thorax with a broad rounded lobe over the scutellum; the lobe not emarginate. The large claw to all the tarsi bifid at the apex.

RUTELARCHA QUADRIMACULATA, n. s.

Oblonga, nitida; capite, scutello thoraceque nigris, hoc lateribus ochraceis; elytris ochraceis maculis quatuor nigris; corpore subtus pedibusque flavis nigro-lineatis, tarsis piceis, capite thoraceque utrinque rugulis instructis. Elytris fortiter striato-punctatis, apicibus fere lævibus.
Long. 8 lin., lat. 5 lin.

Convex, scarcely broader posteriorly than in front, the sides sub-parallel with a very slight constriction below the shoulders. Head with the vertex shining, forehead with a slight impression; the anterior margin and the clypeus covered with transverse rugulæ, those on the forehead stronger; the clypeus in front narrowed, and with a small triangular incision. The thorax is two-fifths broader than long, broadest behind, black, with the sides broadly orange-yellow, in the middle of which margin is a small black spot on each side, the discoidal black portion is in the middle shining and scarcely visibly punctured, but bordered on each side by a longitudinal band of rugulæ (or strong confluent punctures) reaching nearly to the posterior margin, and connected with the hind margin by some strong punctures; the orange portion is also strongly punctured anteriorly, and on the extreme margins; the anterior margin is bisinuate, the anterior angles very slightly prominent; the sides evenly rounded, with the margins incrassate, especially behind; the posterior margin broadly lobed in the middle. Scutellum about half as long as broad, shining, almost impunctate. Elytra of the same width at the base as the base of the thorax, but a trifle broader immediately below the shoulders, very slightly broader posteriorly, with the apices conjointly broadly rounded, strongly punctured in longitudinal lines, the apex, however, nearly impunctate; entirely orange-yellow with the exception of a small round spot below the shoulder, and a large ovate transverse spot a little below the middle, and the suture at the extreme apex, which are black. Pygidium pale yellow, with two minute black dots, shining and impunctate; the under-side yellow, the various parts and segments narrowly bordered with black. Legs yellow, with the upper side of the anterior femora, a spot on the intermediate and posterior femora, and the tarsi, blackish. Antennæ yellowish.

Hab. : Penang?

Coll. Brit. Mus. (Banks.).

Of this beautiful and remarkable insect, which was found in a miscellaneous drawer in the Banksian Cabinet, without locality, I have seen two other specimens, in Mr. Pascoe's possession, from Penang.

RUTELA SANGUINOLENTA, n. s.

Breviter ovalis, nitida; nigra, thoracis lateribus, scutelli basi, elytrorum basi apiceque sanguineis; mesosterno et femorum posteriorum margine antico flavis.
Long. 8 lin., lat. 4½ lin.

Moderately convex, but slightly depressed on the back of the elytra, very shining. Head not very thickly punctured; the clypeus thickly and finely punctured. Thorax convex, two-fifths broader than long, sparingly but distinctly punctured above, more finely punctured on the sides which are bright red, the red portion with a black spot in the middle; the anterior margin is gently sinuate; the sides much rounded; the posterior margin rounded in the middle, gently sinuate on each side. Scutellum triangular, with the sides straight, as long as broad, very sparingly and

finely punctured. Elytra scarcely broader than the thorax, as long as broad; at the extreme base as broad as the base of the thorax, but immediately widening at the shoulders to the width of the thorax across its middle, becoming a trifle broader at the posterior two-thirds, the apex of each elytron broadly rounded; the dorsal region is sparingly and delicately punctured; there is a transverse red band at the base, which, however, does not reach the sides; the apex of each elytron has also a lunate red spot, leaving the extreme margin black. The pygidium is thickly transversely striated, with an obscure red spot on each side at the apex. The sides and the apical segment of the abdomen are also finely striated. One or two small spots at the base of the legs, the front of the mesosternum, and the anterior margin of the posterior femora, are yellow.

Hab. : Ocaña, N. Granada.

Coll. Brit. Mus.

In the British Museum Collection there is a variety from Columbia which bears the manuscript name of "*rufipennis*," differing from the specimen which I have here described as *R. sanguinolenta* in having the thorax rather less rounded at the sides, and it as well as the elytra somewhat strongly punctured; these latter are entirely bright red.

British Museum : *July 3rd*, 1874.

DESCRIPTION OF A NEW GENUS AND SPECIES OF *COLEOPTERA* FROM JAPAN

BY THE REV. H. S. GORHAM AND GEORGE LEWIS.

Family *ENDOMYCHIDÆ*.

CYANAUGES, *g. n.*

Antennæ clavâ laxè articulatâ, articulo ultimo oblique truncato. Palpi maxillares basi constricti, articulo ultimo acuminato. Prosternum latum, apice depresso.

The insect described by Mr. Lewis in the following notice will form the type of a new genus of *Endomychidæ* proper, its near ally being, as I think, *Endomychus*. It is, however, abundantly distinct from any genus in that family by the form of the maxillary palpi. These organs, which in this family have usually the terminal joint truncate, in the present genus have them conically acuminate. The form of the prosternum, taken with the general outline of the insect, induces me to believe its right place will be as I have placed it. Being unique at present, it is of course impossible for me to give accurately the form of the labium; it appears, however, to agree with the rest of the genera near which I place it in being longer than wide. Six segments are distinctly visible in the abdomen. I think, however, the specimen is a female; no secondary sexual characters are to be noticed.

Shipley : *June 10th*, 1874.

H. S. GORHAM.

CYANAUGES GORHAMI, n. s.

Oratus, niger, nitidus. Capite thoraceque sub-lævibus. Elytris nigro-cæruleis, haud striatis, sub-fortiter punctatis. Subtus niger vix punctatus, abdominis apice in medio testaceo. Antennis nigris, palpis pedibusque nigro-piceis. Long. $2\frac{1}{4}$ lin.

Of this pretty species, for which a new genus has been formed by the Rev. H. S. Gorham, I have received during the present year a single example from Kawatchi, in the S.E. of Nipon, and it is with much pleasure that I dedicate it to my friend, the author of the genus.

Norbiton: June 10th, 1874.

GEO. LEWIS.

DESCRIPTION OF A NEW SPECIES OF *CREMASTOCHEILUS*
FROM CALIFORNIA.

BY PROF. J. O. WESTWOOD, M.A., F.L.S.

CREMASTOCHEILUS CRASSIPES, sp. n.

Magnus, latus, supra deplanatus, niger, capite punctato; clypei margine antico parum recurvo semicirculari; pronoto lateribus rotundatis, caput versus angustioribus, dorso parum convexo, angulis anticis fere ad oculos porrectis subacutis, impressione sat profunda intra angulos notata; angulis posticis in cornu breve retro productis; margine postico curvato, disco punctato, punctis præsertim lateralibus majoribus et rotundo-cicatricosis; breviter setoso; elytris latis, dorso planis, punctis ovalibus postice incompletis, parum profundis, guttis minutis strigisque brevibus tenuissimis interdum undulatis, prope suturam albis parce notatis; pedibus brevibus, latis, crassis, fossoriis, tibiis anticis dentibus valde obtusis, tarsis multo brevioribus, articulis latioribus quam longis; mento postice integro, glabro. Long. corp. lin. $8\frac{1}{2}$; lat. humer. elytr. lin. $3\frac{1}{2}$.

Habitat in California. Mus. Parry.

This very distinct species belongs to the group with the mentum entire in the middle of its hind margin, and in which the anterior tarsi have the terminal joints not suddenly dilated; but differs from the two species hitherto described as having the legs short and fossorial (*C. Schaumii* and *angularis*), by having the legs comparatively much broader and shorter, with the joints of the tarsi broader than long.

Oxford: June 24th, 1874.

DESCRIPTIONS OF NEW SPECIES OF BUTTERFLIES.

BY W. C. HEWITSON, F.L.S.

HARMA AMENIDES, *sp. n.*

Upper-side : ♀, dark-brown. Both wings with the usual black linear spots in the cell; both crossed at the middle by a common straight band of white, broadest at the costal margin of the anterior wing, where it is divided into four spots; both wings with a sub-marginal series of white spots (pyramidal on the anterior wing) bordered below with black.

Under-side : blue-white, clouded with brown on both sides of the central band; a sub-marginal undulating brown line.

Exp., $3\frac{2}{10}$ inch.

Hab., Gaboon (*Rogers*).

Much like *H. Ciceronis* of Ward, but without the second sub-marginal band of white spots.

ABISARA RUTHERFORDII, *sp. n.*

Upper-side : ♂, dark red-brown. Anterior wing with the costal margin and apex rufous: the inner margin convex. Posterior with a rather large blue spot towards the apex.

Under-side : red-brown. Both wings crossed below the middle by two bands of white (tinted on the anterior wing with white). Anterior wing with one black ocellus with white pupil, and a minute spot near the apex. Posterior wing with a larger bifid black ocellus bordered with orange, and marked by four minute white spots near the apex, and a sub-marginal line of white.

Exp., $1\frac{8}{10}$ inch. Hab., West Africa (Cross River, *Rutherford*).

This species was sent to me with a thousand others from the Cameroons and Cross River, by Mr. Rutherford. There are many beautiful species, and in great perfection, but undoubtedly the only new one is that which I have now described.

ERESIA EUTROPIA, *sp. n.*

Upper-side : ♂, dark-brown. Anterior wing with a triangular rufous band from the base below the median nervure; crossed obliquely at the middle by a band of four yellow spots, and beyond the middle by a second band of four similar spots; a small spot of yellow near the apex. Posterior wing rufous, with the costal and outer margins dark brown; the outer margin marked by a series of very indistinct pale spots.

Under-side as above, except that both wings have a sub-marginal series of spots, yellow on the anterior wing, white on the posterior wings.

Exp., $1\frac{1}{2}$ inch.

Hab., Panama.

Nearly allied to *E. dismorphina* of Butler.

NOTES ON A COLLECTION OF BUTTERFLIES RECENTLY BROUGHT
FROM CAPE COAST, WEST AFRICA, WITH DESCRIPTION OF A
NEW SPECIES FROM NATAL.

BY A. G. BUTLER, F.L.S.

My friend Charles Harton, Esq., of Manchester, recently wrote to me, advising me of the arrival of a rather fine collection of West African butterflies, from which the following species, formerly desiderata to the cabinets of the British Museum, have been selected :

CHARAXES EPHYRA, Godt. ♀.

The female of this species differs from that of *C. Ethalion* in the straighter costa of primaries, the white band of which is not clouded with blue, and is of the form of the pale tawny-ochreous band of *C. Viola*; the basal area is also richly shot with purple: this insect is very interesting; as proving the entire distinctness in both sexes of *C. Ethalion* and *C. Ephyra*.

ROMALEOSOMA SARCOPTERA, Butl. ♂.

A fine male of this rare species, differing in no respect from the type.

PSEUDACRÆA STRIATA, Butl. ♀.

The male was also in the collection and is now in Mr. Druce's hands.

PSEUDACRÆA BOISDUVALII, Doubl. ♂, ♀.

The male of this species is exceedingly rare; Mr. Trimen speaks of having seen a specimen from Old Calabar in Mr. Hewitson's collection; he, moreover, figures the Natal species (both sexes) as a variety of the same—influenced, no doubt, by a curious, apparently intermediate, aberration of the latter in the South African Museum: as I now have an opportunity of comparing the two males, and as I find that they mimic respectively two entirely distinct species of *Acræa* (referable to two of Doubleday's sections of the genus), I describe the Natal species as follows:

PSEUDACRÆA TRIMENII, *n. sp.*

Panopea Boisduvalii, *var.*, Trimen, Trans. Linn. Soc., xxvi, pl. xxvi, figs. 8, 9 (1869).

♂. Wings above reddish-tawny (possibly crimson in fresh specimens), primaries spotted and streaked as in *P. Boisduvalii*, apical half of wings translucent-brown, crossed by a broad salmon-coloured

belt, from sub-costal nervure to third median branch, and thence continued, as two large decreasing spots, into median interspaces; secondaries spotted and margined, as in *P. Boisduvalii*: body very similar to the same: wings below paler than above, secondaries with a whitish nebula on end of cell, and origin of median branches, black spots smaller than in *P. Boisduvalii*; no pale yellow tint on secondaries. Expanse of wings, $3\frac{1}{2}$ inches.

Port Natal (Gueinzus).

B. M.

This species mimics *Acræa Acara* of Hewitson, as Mr. Trimen has already pointed out, the latter, however, is very distinct from *A. Zetes*, of which *P. Boisduvalii* was supposed to be an imitation; the male of *P. Boisduvalii* is a narrower-winged, more slenderly built insect than *P. Trimenii*; the primaries are translucent-black, with the nervures, internervular folds and spots black; the basal third is purplish; there is a quadratè patch of bright salmon-colour at anal angle, interrupted by the spots and the last black dash, and margined externally with black; the secondaries are produced and acutely pointed at anal angle; the central area and sub-marginal spots are scarlet; the abdominal region is ochreous; below, the wings are very similar to those of the female, but brighter in colouring; the secondaries are coloured much as in some *Romaleosomæ*, pale yellow, tinted with rosy, with a bright rosy flush in cell, and on the sub-marginal spots, the costal area being tinted with greenish: it mimics *Acræa Egina* of Cramer, although the female certainly bears a nearer resemblance to *A. Menippe*.

ACRÆA, ♂ ♀, possibly a new species.

ACRÆA, ♀ (*Admatha* group), probably a new species.

MYCALESIS, *sp.* apparently new.

BELENOIS HEDYLE, ♀, Cramer.

EPITOLA, *sp.*

PHYTALA? two species: also three pretty little species of *Iolaus*, one of which (described, I believe, by Hopffer) was represented in the collection by eight or ten examples.

I may mention that the following species were also represented, and have, as I understand, since passed into Mr. Hewitson's hands:—two examples of a fine *Romaleosoma*, *R. Pratinus*, several respectable specimens of *Harma Egesta*, with other species of less interest.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from p. 31).

Sericoris micana, Hüb., Fröl.—Dr. Wocke changes this to *olivana*, Tr., but wherefore I cannot understand, for though he appends a ? to his reference to Hübner, he does not to Frölich, and his name is evidently two years older than that of Treitschke. I think, therefore, that *micana*, Fröl., may safely be retained as the name of this species. An allied species, to which Treitschke gave the name of *micana*, is now altered to *stibiana*, Gn.

Sericoris alternana, Wilk. (Curt.?).—I do not think that this name can be assigned to Curtis. His description, as quoted by Stephens, is not applicable, or rather is more applicable to *irriguana*, or the dull, dark-olive form of *lacunana*, which occurs along with *alternana* in Scotland. Wilkinson's description, however, is excellent, and his name must be the reference appended to the species. Nevertheless, Dr. Wocke has made a most extraordinary mistake respecting it. He calls it *alternella*, Wilk., and places it as a synonym of *umbrosana*, Freyer, a species closely resembling *urticana*, but larger, and having the horizontal pale streak in the dark fascia as in *lacunana*. From this *alternana* is very distinct. Mr. Doubleday in his List calls it *Daleana*, Dbld., on account of the existence of another *alternana* (or rather *alternella*) in the genus *Sciaphila*, and a third in *Cochylis*, but I see no fear of any confusion from the adoption of the same name in such distinct genera, and as, moreover, there is no description or figure appended to the name *Daleana*, I think it absolutely necessary to retain Wilkinson's name.

This species seems to be totally unknown on the Continent, but the female resembles some of the forms of *irriguana* or *metallicana* to some extent.

Sericoris irriguana, H.-S.—Recorded as British by Mr. Nicholas Cooke (Ent. Mo. Mag., Vol. viii, p. 255), and noticed in the Ent. Ann., 1872, under the name of *metallicana*, Hüb., of which species Dr. Wocke considers *irriguana*, H.-S., to be a variety.

Of *metallicana*, Hüb., Heinemann writes (*Tortricina*, p. 119)—“Anterior wings olive-green dusted with blackish, with two olive-yellowish fasciæ, margined with lustrous dark yellow lines, the posterior fascia oblique, not forked.

“This species has, amongst its allies, the broadest anterior wings “with distinctly curved costa, and the hind margin not very oblique.

"The pale fasciæ are broader, the posterior one runs in a straight direction towards the anal angle, whereby the dark middle fascia is expanded towards the inner margin."

Of *irriguana*, H.-S., he says—"Anterior wings with slightly curved costa and straight hind margin, olive-greenish, with more or less distinct dark fasciæ bordered by pale leaden lines. Unicolorous specimens of this species occur which are quite like *sudetana*, and only to be distinguished from it by the less curved costa, the rather straight but oblique hind margin, and the sharper pointed apex of the anterior wings. Sometimes the costal streaks and the leaden lines are almost entirely wanting, &c., &c."

Now, I have a series of specimens of this group from different parts of the Continent, labelled (rather promiscuously) *metallicana* and *irriguana*. Some (bearing each name) are broad winged, with curved costa; hind margin not very oblique, and in the breadth and disposition of the fasciæ also, agree closely with the above description of *metallicana*. Others with narrower wings, straighter costa and hind margin, and very pointed apex, agree exactly with the description of *irriguana*, and with our Scotch specimens, as also do Herrich-Schäffer's figures, 424—5. These Scotch specimens all belong to the variety without silvery lines (although Dr. White tells me that even these are slightly perceptible when the moths are alive). The majority of them are darkly marked as in Heinemann's description, and a few are almost unicolorous, closely resembling *sudetana*, Standfuss. I am therefore satisfied that our insect is truly *irriguana*, and also strongly disposed to the opinion that it is distinct from *metallicana*, Hübn., although the difficulty of deciding, from the similarity and parallel variation of the species of this group, is so great, that I should not feel at all surprised if the sight of series from new localities should completely upset the conclusions that have now been arrived at with no little difficulty.

As no detailed description of *irriguana* has been published in this country, it may be worth while to append one, although that already quoted from Heinemann is very clear.

Head, palpi, and thorax dark grey, thickly sprinkled with pale yellowish scales; antennæ dark grey; fore-wings pale buff with an olive tinge, and with dark greyish-brown markings; basal blotch interrupted, produced on the fold almost to the central fascia; central fascia also sometimes interrupted above the middle, irregular, toothed exteriorly. Beyond it is a blotch at the anal angle, and an oblique cloud across the apical region; sometimes these unite and form a fascia before the hind margin. On the costa towards the apex are three short streaks or spots; cilia pale ochreous dusted with black; hind-wings dark grey; cilia straw-coloured, with a dark line at the base.

The female is generally dark, the markings sometimes forming *three* irregular fasciæ.

The males are very variable, some of them having hardly a trace of the dark markings, as already observed. Alar. exp. 7—8 lines.

The most nearly allied species that we have is *alternana*, the females of which bear some resemblance to this species, but have broader, straighter fasciæ, and less acute wings, while the males are much larger, with broad indistinct fasciæ, and the costa and hind margin more rounded than in either *irriguana*, *metallicana*, or *sudetana*, so that there is little danger of mistaking it.

As recorded in the Ent. Ann. by Dr. Knaggs, *irriguana* has only been taken as yet in Inverness-shire and on the mountains near Braemar, in Britain, and I am indebted to Dr. F. Buchanan White for the opportunity of examining the fine series which he has obtained in the latter locality.

I have no knowledge that the allied *metallicana*, Hübn., has ever been taken in this island, although Scotland is given as one of its localities by Dr. Wocke.

Sericoris fuligana, Haw.—Called by Mr. Doubleday, in his List, *abscissana*, Gn., MSS., but Haworth's description is tolerably accurate, and I think his name should be retained, as there is little probability of the species being confounded with *Penthina fuligana*, Hübn.

Sericoris cespitana, Hübn.—In some localities an exceedingly variable species, in others more constant.

Sericoris Doubledayana, Barrett.—Described in the Ent. Mo. Mag., Vol. viii, p. 246, and Ent. Ann., 1873, p. 45. Since taken in some numbers in the Norfolk fens.

Sericoris politana, Haw.—Called by Mr. Doubleday, in his List, *lepidana*, Curt., but Haworth's is the earliest name. *Sylvana*, Tr., is the paler variety of this, and is united with it by Dr. Wocke.

He places this species, with *Cnephasia cinctana*, among the typical *Tortrices* in the genus *Lophoderus*, between *ochreana*, Hübn., and *ministrana*, Linn., and, at a greater distance, between the species of the genera *Tortrix* and *Lozotænia* of Wilkinson.

Sericoris littoralis, Curt.—This species is liable to curious variations, some specimens being totally destitute of the typical markings, and having faint oblique clouds only on the fore-wings.

Sericoris euphorbiana, Frr.—Within the last few years this species has been re-discovered on the south coast, and its larva found feeding upon spurge. Many specimens have been reared by my friend Mr. Howard Vaughan, and others.

Sericoris latifasciana, Haw.—M. Jourdheuille says of this species :—“ Larva in silken tubes under moss on trees.”

Sericoris bifasciana, Haw.—I have found this species occasionally in Norfolk.

Mixodia Schulziana, Fab.—I found this species rather common in Woolmer Forest some years ago, the specimens being large and very richly marked. Specimens from Germany and Switzerland are, however, much larger.

Mixodia palustrana, Zell.

Lobesia reliquana, Wilk.—Prof. Zeller assures me that this is not *reliquana*, but *permixtana*, Hübn., and this, Mr. Stainton tells me, is confirmed by Hübner's figure. Haworth and Wood are therefore correct. Prof. Zeller has sent me specimens of *reliquana*, Hübn. (now known as *botrana*, Schiff.), and these show it to be a broader-winged insect, with markings similar to those of our species, but all dilated and diluted. This species (*botrana*) feeds on vine, but ours (*permixtana*) seems partial to oak. M. Jourdheuille, however, states that its larva feeds on *Anchusa officinalis*. This requires confirmation.

Dr. Wocke, in his List, misapplies the *reliquana* of Wilkinson and Stainton's Manual, making it synonymous with *botrana*, Schiff., and not with *permixtana*, Hübn., although he quotes Haworth and Wood under the latter head.

(To be continued).

ADDITIONS TO THE LIST OF BRITISH HEMIPTERA.

BY EDWARD SAUNDERS, F.L.S.

CYMUS MELANOCEPHALUS, Fieb., Eur. Hem., p. 203, 2.

Head obscure brown, darker than the thorax. Thorax reddish-brown, generally darker at the sides, largely and deeply punctured, with a rather deep collar in front, from the middle of which runs a short, concolorous keel, scarcely reaching to the centre of the disc. Scutellum dark brown, without any central keel, strongly punctured, and in some specimens transversely rugose. Elytra lighter in colour than the thorax, each with a clouded spot near the basal angle of the membrane, largely and densely punctured all over. Posterior margin of the corium dark, especially at the apex. Membrane hyaline. Under-side reddish-brown. Length $1\frac{1}{2}$ —2 lin.

On rushes, by sweeping, near Chobham, rather sparingly; June, 1874.

OBS.—Differs from both our other species by the dark colour of the head, the concolorous keel of the thorax, and the absence of any keel on the scutellum. It is allied in shape to *C. claviculus*, but, besides the above characters, it may be distinguished from that species

by the punctuation of the corium, which is close and irregular all over; whereas, in *clavculus*, along the claval suture, there are two regular sub-parallel rows of punctures, with a rather wide smooth space between them, while the rest of the corium is closely punctured.

LITOSOMA DOUGLASI, n. s.

Pale green; clavus, outer nerve of the corium, and the external margin of the cuneus, darker. Antennæ with a brownish tinge. After death, the head, the front of the thorax, the legs, and the sides of the elytra more or less widely, become of a yellowish-brown colour. Surface covered with short, curved, white hairs, mixed with longer nearly straight black ones; these black hairs are only observable under a strong lens. Membrane slightly clouded; nerves pale greenish-yellow, yellowish-brown after death. Tarsi brownish, black at the apex. Antennæ: first joint about two-thirds as long as fourth, second joint as long as third and fourth together, fourth about—or not quite—two-thirds as long as the third. Length 2 lines.

On broom, Woking, July, 1871 and 1874.

Obs.—The short third and fourth joints of the antennæ will at once distinguish this species from its allies. I can find no description of any European species to agree with it, and therefore describe it as new. I have named it in honour of Mr. J. W. Douglas, who has rendered me much assistance in the study of this genus, and whose knowledge of our British *Hemiptera* is so well known.

Wandsworth: July, 1874.

Occurrence in Britain of Abdera triguttata, Gyll.—I have much pleasure in being able to record the capture in this country of *Abdera triguttata*, Gyll., a species occurring somewhat rarely in Sweden, France, and Germany. It is hardly to be compared with either of our other British *Abdera*, but is a little like *bifasciata*, though larger and much broader (especially behind) in proportion, with the markings of the elytra very different. It varies somewhat (from $1\frac{1}{4}$ to $1\frac{3}{4}$ lines) in length and very much in colouration, some individuals being mostly lurid-testaceous, with the disc of the thorax, a small scutellar patch and a larger triangular marking on each elytron below the middle dark, whilst others (and those would seem to be the type form) are pitchy-black, with two light ovate spots below the scutellum, pointed towards the suture, down which the light colour runs narrowly until it forms a common larger pale spot before the apex. Every intermediate grade appears to exist: and, from the absence of mention by Gyllenhal or Thomson of any varieties in such a variable insect, it would seem that no large numbers of it can have come under the observation of either of those authors. The whole insect is very pubescent, rather coarsely punctured all over; and has the two basal joints of the antennæ testaceous. Found, somewhat commonly, in company with *Zilora ferruginea*, by my friend Mr. Allin and myself, under (and in chinks of) bark of young dead standing Scotch firs, at Aviemore, Inverness-shire, in the beginning of June last. It is one of the most fragile insects I ever met with.—G. C. CHAMPION, 274, Walworth Road, London.—July 10th, 1874.

Coleoptera at Aviemore, Inverness-shire.—In the beginning of June last, Mr. Allin and I had about a fortnight's collecting in the above neighbourhood (a district hitherto, I believe, entirely unworked by entomologists), where, in addition to very extensive fir woods, which just now are in a young state of growth (the older trees having been all felled some years since), we had the higher Grampians, Braeriach, Ben Muich Dhui, Cairngorm, &c., in our vicinity. Most of the species observed were (with one or two exceptions) similar to those found at Braemar, as might be expected, Aviemore being only thirty miles north of that place, on the other side of the Grampians. We were, doubtless, at the wrong time for many things, as several conspicuous common species did not put in an appearance; however, what we did get was little and good. Amongst many other species captured by us, I mention the following:—

Carabus catenulatus; an entirely black and also a pitchy coloured form occurred on the mountains, at an elevation of 3000 feet and upwards. *Amara alpina*; I found a single ♀ example of this very rare British species in moss, at an elevation of about 2500 feet; many days working failed to produce more. *Hydroporus 9-lineatus*; vars. occurred, in company with the type form, in which the dark lines on the elytra were almost obliterated. *Agabus Solieri*; abundant in a clear weedless loch (which owed its supply of water to the great quantity of melting snow), on Braeriach, at an elevation of quite 3000 feet. The beetle was to be found in clusters of often a dozen, hiding under the stones at the edge, and easily captured by hand. *A. guttatus* occurred with it, but not a single *bipustulatus*. *Oxypoda rupicola*, Rye, *edinensis*, Sharp, and *aterrima*; under stones and in moss on the hills. *Bryoporus rugipennis* and *Mycetoporus tenuis* occurred very rarely in moss high up, generally near the tops of the mountains; I even found a specimen of the latter under a stone at the cairn on Braeriach (4265 feet elevation). *Xantholinus lentus*; very sparingly under bark of Scotch fir, not always caught when seen, as it is very fond of dropping the instant the bark is removed. *Homalium Heeri* (? *vile* var.); under bark of fir, in company with type *vile*. *Rhizophagus politus*, a very small individual under bark; hitherto not recorded from Scotland. *Cryptophagus parallelus*, Bris.; rarely, by beating cut fir tops lying on ground, and not accompanied by *C. dentatus*. *Lathridius rugosus*, with pitchy-brown elytra, in some small quantity, in the snuff-like fungus on alder so much liked by *Liodes* and *Sphindus* (I have recently taken the same *Lathridius*, wholly black, in the like fungus at Loughton). *Trichius fasciatus*; dug out of a birch stump; we were probably too soon for this species. *Eros Aurora*; one, under birch bark. *Ernobius nigrinus*; rarely, by beating dead fir tops. *Cis punctulatus*; common, under fir bark, in company with *Abdera triguttata*. *Zilora ferruginea*; rather commonly by barking young dead standing firs. It varies considerably in size (and colour) the larger specimens being fully twice the length of the smallest. *Carida flexuosa*; rarely, in hard woody fungus on alder. *Dircæa*, *Tetratoma ancora*, and *Orchesia minor*; occasionally under fir bark. *Anthonomus varians* and *Magdalinus phlegmaticus*; rarely, by beating fir. *Brachonyx indigena*; common, but very local, one very hot sunny day (rare afterwards), by beating firs. This species drops very readily, and sticks to the first place it comes to, and if not found sticking round the edges of the beating net, takes a long time to find in the bottom of the net as it clings to, and hides amongst, the debris of the young shoots, &c. *Pissodes notatus*, *Rhinomacer*, *Aseum*, and *Pogonocherus fasciculatus* also occurred occasionally by beating fir. *Hylastes cunicularis*; rare, by beating dead fir tops, &c. I might make this list very much longer, but have only selected the most noteworthy species.—ID.

Additions to the British list of Tenthredinidæ.

Dineura stilata, Klug, Blattw., No. 72; Hartig, Blattw. und Holzw., 227, 2; *Nematus stilatus*, Thomson, Hymen. Scand., i, 82, 3. I captured both sexes of this species at the end of last month on *Pyrus aucuparia* in Cadder Wood.

Selandria grandis, Zaddach, Beschreibung neuer oder wenig bekannter Blattwespen, p. 36 (1859), = *S. interstitialis*, Thomson, Hymen. Scand., i, 237, 2 (1871). This species will, I believe, prove to be common in Britain; but it is very apt to be passed over for the familiar *S. serva*, with which it agrees nearly in colouration, but differs in a few other points, notably in having the second recurrent nervure joined to the second sub-marginal nervure; and it is, moreover, a much larger insect. I have taken it in several places in Scotland, and have also seen an English example captured by the Rev. T. A. Marshall. It is very desirable that both forms should be bred, in order to see if the larvæ differ.

Nematus histrio, Le Pel., Monographia Tenthredinetarum, 63, 185 (1823), = *N. rufescens*, Hartig, Blattw., 191, 15 (1837); Thomson, Hymen. Scand., i, 130, 56. Bred from a pale green larva, with a darker green dorsal line, bordered on each side by another line, which, when the creature is feeding, is white; and all three disappear after it has spun up. The sides are dotted with small points. The larvæ were discovered (not uncommonly) feeding on *Salix aurita*, on the hill-sides at Glenelg, in June, and spun up at the end of that month or the beginning of July, the flies appearing the following spring.

I noticed a curious circumstance with two of these larvæ; they inhabited one common cocoon, which was a little more than double the ordinary size, and was also of a much more oval shape. Probably, it was merely two cocoons joined together; but there was no partition separating the inhabitants. I do not at present recollect whether they reached the perfect state or not.—P. CAMERON, Jun., 136, West Graham Street, Glasgow: 14th July, 1874.

Chrysopa tenella, &c., at Weybridge.—On the 4th inst., I took two examples of this rare or overlooked species in St. George's Hill Wood. *C. aspersa*, *ventralis*, and *flavifrons*, were all tolerably common; but *Nothochrysa capitata*, of which I captured an example at this place last summer, was not to be seen. To my horror, I found that my favourite ponds in the wood had been drained off, but *Pyrrhosoma tenellum* still lingered. A single *Ephemera* proved to be the recently described *E. lineata*, Eaton.—R. McLACHLAN, Lewisham: 9th July, 1874.

Note on Bolivian Rhopalocera.—Mr. Buckley, who has been out to Bolivia for me, has just returned with a very valuable collection of butterflies. He had received some packages in such a mutilated state that he at once resolved to be his own carrier of the collection which he was just about to send.

Like his former collections, it is in a state of the greatest perfection, and contains many new and some rare and splendid species: amongst them, *Morpho Godarti*, and *M. Aurora*. He had watched the *Morpho Godarti* for some time frequenting a grassy ledge upon the face of a precipice, hoping, but in vain, that it would come within his reach. He had to be let down by a rope to obtain it.

I have not yet examined the collection sufficiently to ascertain the number of new species, but have no difficulty in saying that there will be at least fifty: some of them very remarkable. Mr. Buckley will return to Bolivia again shortly.—W. C. HEWITSON, Oatlands: July 11th, 1874.

Description of the larva, &c., of Erastria fuscula.—To Mr. G. C. Bignell, of Devonport, my best thanks are due, not only for kindly supplying me with the larva of this species last autumn, but also for clearing up what had been the reason of my failing to procure it before.

One night in the autumn of 1857, the year in which I began collecting, I found a twelve-footed larva walking on the ground, which spun up at once, and during the next summer produced *E. fuscula*. Not having found it on its food, and seeing that the books with one consent gave bramble as the food, for many subsequent years I used to beat the brambles in the same locality, hoping to get more larvæ; and when I could take the moths, I used to shut them up with bramble sprays in order to try for eggs. But in neither case were my efforts successful,—and why? Last autumn, Mr. Bignell, whilst sweeping herbage at night, took several larvæ off a stiff grass, *Molinia cœrulea*, growing in damp places; these, on examination, he concluded to be *fuscula*, and this summer has proved his conclusion to be correct.

The secret of our previous puzzle is now out; one might have beaten brambles for ever without finding a larva.

The larvæ came to me on September 10th, 1873, and spun up by the end of the month; the moths appeared during the last week of May, 1874.

The full-grown larva is about three-quarters of an inch long, rather slender, and even in bulk throughout; the twelfth and thirteenth segments taper a little; the head full and round; fully developed ventral legs on segments nine and ten, with rudiments of legs on segment eight: in walking it is a semilooper; the colour on the back is pale yellow with a broad greenish pulsating dorsal vessel; the sub-dorsal is a thin line of clear yellow edged above with brown, and below with greenish; the round black spiracles placed on a thin reddish line; anal legs sometimes purplish; the usual dots on the back blackish ringed with reddish; the belly yellow, with its dots black.

Some of the larvæ have a more reddish tint, and have every line edged with decided red; with a brownish stripe between the lower edging of the sub-dorsal and the spiracular line, and below this again a yellow line, then a red line, and the belly dull, pale brownish.

The cocoon is very firmly and neatly made of a thin coating of silk, stuck all over with fine earth or sand, about four lines deep and two wide. Some spun among moss, by larvæ, which died, were not so close or tough, and were both longer and wider.

The pupa is about five-sixteenths of an inch long, cylindrical, stoutish about the thorax, the abdomen smaller and short in proportion, ending rather bluntly in a spike set with several curled-topped spines; the pupa skin very glossy, rich red-brown; the wing-cases more golden-brown; the eyes blackish.

By the kind help of the Rev. T. A. Marshall, I am able to add that the name of the ichneumon, which was bred about the middle of April from some of the cocoons, is *Protelus chrysophthalmus*. A saw-fly larva much resembling that of *fuscula* in colour, feeds with it on the same grass, but I have not found out to what species it belongs; and I shall leave some one else to guess which of the two is the first wearer, and which the mimic, of the colours of their common dress.—J. HELLINS, Exeter: 14th July, 1874.

Description of the larva, &c., of Pyrausta punicealis.—For larvæ of this species I am indebted to Mr. W. H. Harwood, who found them somewhat plentifully last

year on *Nepeta cataria*; he had previously noticed that the perfect insects were never found far away from that plant, and hence, suspecting that the larvæ fed on it, he searched for them with success.

The larvæ (of the second brood) reached me on September 25th, 1873, feeding on the mint flower-heads under a confused covering of silken threads, for their work could not be called regular galleries; and they continued to feed for about three weeks; then they spun up in very tough cocoons of pale brownish silk, but how long they remained before turning to pupæ I cannot say. I bred some moths between the 16th and 23rd May, 1874, yet some little time after this date, viz., on June 11th, Mr. Buckler, on examining some of his cocoons in order to obtain a pupa case, found several larvæ still unchanged though quite alive. Whether these will remain on till the appearance of the August moths of the present year, or until the May brood of next year, we have not of course yet the power of deciding.

The full-grown larva is a little more than five-eighths of an inch in length (perhaps it grows longer when at large, for all the moths we bred were small, showing our larvæ had not attained full development), stoutest at segments eight, nine, and ten, thence tapering very rapidly to the tail, and more gradually to the head, which is the smallest segment; the colour is a dull green on the back, the dorsal line being of the same, only marked off with edgings of yellow; the spiracular stripe broad and yellowish, with a faint greenish line through it; the head and second segment pale brownish freckled with black; below the spiracles a double greenish line; the belly pale yellowish; all the usual dots distinct, being shining black and narrowly ringed with yellow; when full fed the larva becomes pinkish.

There seems to be a variety which is all over pale greenish, with no darker stripes or lines; and another which has a pale blotch of yellowish ground colour on the back of the twelfth and thirteenth segments.

The pupa is cylindrical, slender, the abdomen ending in a flattened blunt projection, beset at right angles with some curled-topped spines.—ID. : 14th July, 1874.

Description of the larva of Agrotis (Noctua) subrosea.—On a turf-moss at Kurtenhof, near Riga, where I used to collect along with Herr Teich (the discoverer of the larva of *Cosmopteryx Lienigiella*), *Agrotis subrosea*, Steph., occurs sparingly from the 22nd July to the latter half of August, in company with *Catocala pacta*, L., *Luperina Haworthii*, Curt., *Hydræcia nictitans*, Bkh., &c.; it is Staudinger's variety *subcærulea* (the *Agr. subrosea*, Herrich-Schäffer, figs. 516, 622).

At the end of May, 1870, I beat three of the larvæ of this species in the evening twilight from *Andromeda polifolia*, L. In captivity they also ate several species of willow (*Salix fragilis*, L., *S. alba*, L., *S. rosmarinifolia*). Not being acquainted with any description of the larva of this species, I here give one from the three larvæ collected by me at Kurtenhof. If the early stages of the typical English species are known, a comparison with this description may help to show whether the variety which occurs in Livonia and Finland should be considered as a distinct species, or remain only a form of the English *A. subrosea*.

Diagn.: grey-brown, with a tinge of violet; three pale violet-grey dorsal lines, and one sub-dorsal line of the same colour; the spiracular line sulphur-coloured; head chestnut-brown; second segment ferruginous; anal segment violet-grey; legs cinnamon-coloured.

The ground colour varies from dark brown to violet-grey, more or less tinged with violet. The dorsal and sub-dorsal lines are pale violet-grey, only very rarely blueish-white, in which case, however, this colour predominates in the narrower central dorsal line. Anterior legs bright cinnamon-coloured, the same as the spiracles; prolegs pale cinnamon-coloured.

Eight days before pupation the larva appears with a broad grey band along the back, which is very distinct from the ground colour, but this vanishes again in two or three days, so that the back then only looks a little paler; the spiracular line assumes a darker shade; the dorsal lines become paler and unconnected; the sub-dorsal lines and generally also the non-central dorsal lines seem to consist of small irregular spots, and assume a darker shade.

Between the dorsal spots on segments four to six, there appears an oblique, dark shade, which is wanting on the other segments, and the first of these is especially conspicuous as a horse-shoe-shaped mark. Here and there the larva appears as though dark shaded or violetish, especially the segments on the back, where the shading from the distance shows itself acutely-angular.

Some four days later, the ground colour is faintly violet, here and there shining through greenish; the violet colour being most distinct at the incisions of the segments. The yellow spiracular line is shaded with dark above and below, the shading most intense above and around the spiracles. The second segment and anal prolegs ferruginous; the head dark chestnut-brown. The fine dorsal lines and the sub-dorsal lines only faintly indicated as though formed of dot-like dusting. On the anterior segments these lines, especially those on the back, still remain very distinct: the central one bluish-white, the lateral lines yellowish. The shade between the dorsal spots on segments three to five is pale brown; horse-shoe mark dark brown; anal segment violet-grey.

Shortly before pupation the larva becomes violet-grey, finely sprinkled with brown; the spiracular line pale yellow, with faint shading, which has become more concentrated round the spiracles. The dorsal spot shading is strongest on segment three, fainter on segment four, and feeblest on segment five. The wedge-shaped marks on the incisions of the segments violetish, most distinct from the fourth and fifth.

The imago escaped from the somewhat compressed pale brown pupa after an interval of twenty-eight to thirty days.—CARL BERG, Musco Publico, Buenos Ayres: October 9th, 1873. [Translated from the Stettin. Entomolog. Zeitung, 1874, p. 146.]

Nola albulalis, &c., in North Kent.—On Monday morning last, the 13th inst., I left home for five days' collecting in North Kent, in company with the Rev. T. W. Daltry, of Modeley. A day or two before, Mr. Daltry, who had been there the week previous, had written me he had found out the locality for *Nola albulalis*, and to collect this species was my principal inducement for going. Monday evening we went to the marshes and found *Acidalia emutaria* not uncommon; next morning we found an abundance of *Acidalia rusticata* on two elm hedges; the afternoon and evening we spent in the *albulalis* locality, and took the species very freely; Wednesday and Thursday evenings we had equal success, *albulalis* flying in abundance, indeed, at one time, standing in one spot, I took them as they flew past as fast as I could box them. Friday evening we went again, but were astonished to find that not a speci-

men was to be seen; we could only account for it by the fact that the weather had become colder and the ground damp; but do what we would, neither of us could find a specimen. Next day I returned home. Other *Lepidoptera* were plentiful: *Apatura Iris* was not uncommon about the oaks in one place; and *Pterophorus rhododactylus* occurred about rose. *Albulalis* is easily disturbed from the grass and low under-wood in the daytime; and flies freely, for a short time only, just at dusk, very slowly, and not far from the ground. Though small, its pale colour makes it very conspicuous, and the marvel to me is that it has been a rarity for so long.—GEO. T. PORRITT, Huddersfield: July 20th, 1874.

ENTOMOLOGICAL SOCIETY OF LONDON: 1st June, 1874.—The President in the Chair.

Mons. Achille Guénée, of Chateaudun, was elected an Honorary Member in the place of M. Guérin-Méneville, deceased; and A. Ogier Ward, Esq., of Putney, was elected a Subscriber.

Mr. McLachlan exhibited winged individuals, larvæ, pupæ, and soldiers of the white ant (*Calotermes sp.*) recently bred at Kew from the wood of the copal tree.

Mr. Stainton read a letter from the Rev. P. H. Newnham, of Stonchouse, Devon, stating that he had just taken two examples of *Deiopeia pulchella* on the Cornish side of the river Tamar, and was willing to dispose of them, the proceeds to go to a church-building fund. Mr. Stainton incidentally remarked on the exceptional time of appearance of the insect in this country.

Mr. C. O. Waterhouse sent for exhibition a living (immature, though considerably advanced) example of *Empusa pauperata* brought from Hyère by the Rev. Mr. Sanders. He had tried to feed it with flies, but without success. Mr. Stainton suggested that a live spider should be placed before it; he had found this to succeed with an example brought by himself from the south of France.

Mr. W. D. Gooch, of Natal, communicated a detailed account of his experiences with regard to the Longicorn coffee-borer of that colony, explaining the plans adopted to check the ravages apparently caused by the beetle. Mr. Gooch mentioned that the managers of neighbouring estates informed him that on a north and north-east aspect they found as much as ninety per cent. of the plants attacked by the larvæ, whereas, on cold slopes with a south-west and south-east aspect, the insect was not present, although the mortality in the plants was about the same. Any suggestion as to the destruction of insectivorous birds was useless in this case, because no birds were destroyed. Dr. Horn (of Philadelphia) stated that European conifers, limes, &c., planted in a public park in Philadelphia, were all killed by the larvæ of native species, though apparently in a healthy condition, and native trees were not perceptibly affected. Mr. McLachlan reiterated that, according to the observations of European entomologists, the majority of the European species do not attack living healthy wood.

Mr. Butler communicated a paper on new species and a new genus of Diurnal *Lepidoptera* in the collection of Mr. Druce.

Mr. Smith read a revision of the Hymenopterous genera *Cleptes*, *Parnopes*, *Pyria*, *Anthracias*, and *Stilbium*, combining also new exotic species of *Chrysis*. The genus *Anthracias* formed a subject of special interest, because no one had, apparently, recognised it since Klug published his brief generic characters; but Mr. Smith had found an example among a series of *Parnopes carnea* that formerly belonged to Mr. Shuckard.

Review.

THE BUTTERFLIES OF NORTH AMERICA, with coloured drawings and descriptions; by W. H. EDWARDS. Second series, part i. New York, Hurd and Houghton; London, Trübner and Co. May, 1874.

Mr. Edwards has commenced a second series of his magnificent work, and the first part of it fully maintains, both in plates and descriptive matter, the almost unrivalled excellence of the first series. It is devoted to species of *Papilio*, *Anthocaris*, *Argynnis*, *Libythea*, and *Chionobas*, and in several there are copious illustrations of all the stages from the egg upward. Apart from the beauty of the plates (which could scarcely be surpassed for fidelity), the letter-press must commend itself to the scientific entomologist from the careful way in which the descriptions are made, and from the very copious and interesting geographical notes.

Obituary.

R. G. Keeley. Mr. Keeley died of consumption at Southampton on the 28th June, aged 38. He was known to many entomologists as a quiet and unassuming collector of British *Coleoptera*, of which he had a good general knowledge. We believe he was originally in the service of a well-known firm of natural history lithographers, which possibly brought out his taste for entomological pursuits, and for many years past he was an employé of a large East Indian Agency, and being transferred to the Southampton branch, he took up his residence in that town. He seldom published notes, but his name appears occasionally in the various entomological periodicals, probably for the first time in the 'Intelligencer' for 1858. He leaves a widow and three children.

George Robert Crotch, M.A. It is our painful duty to announce the loss of one of the most widely-known of British, or even of European entomologists. George Robert Crotch, M.A., died at Philadelphia, U. S., on the 16th June last. When quite a youth, Crotch already displayed a love for entomology; this manifested itself at first, as is so often the case, by his commencing the formation of a collection of *Lepidoptera*; in this he was very successful, and, while an undergraduate at Cambridge, he captured in the fens of the district many rare and little-known species of this order. At the same time he was also occupied in the formation of a collection of British *Coleoptera*, and, during the years 1860-63, discovered numerous species of this order not then known to inhabit the British Islands, and recorded their occurrence in the pages of the *Zoologist*.

In the year 1863 he obtained his degree of M.A. at Cambridge, by graduating in the Natural Science Tripos.

By this time the order *Coleoptera* had entirely engrossed Crotch's entomological attention, and in the same year (1863) he published a Catalogue of British *Coleoptera*. This Catalogue contained the names of a great many species not before recorded as British, and, as it differed much both in arrangement and nomenclature from the Catalogues of British *Coleoptera* that had preceded it in this country, it attracted much attention, and was much discussed by entomologists. Whatever may be thought of some of the changes adopted in this work (and many of them are, and probably will be for long, points under discussion), it was undoubtedly a valuable

contribution to our knowledge of the British insect fauna, and had an important effect in stimulating his fellow-labourers to further researches, and it obtained for its author a prominent place among the entomologists of this country.

Crotch was always a most enthusiastic and skilful collector of insects, and in the year 1864, visited the Canary Islands in company with his brother, Mr. W. D. Crotch, for the purpose of collecting the *Coleoptera* of the Islands. So successful were these two collectors, that, notwithstanding the fact that T. V. Wollaston, J. Gray, as well as W. D. Crotch himself, and others, had previously collected *Coleoptera* assiduously in these islands, they added no less than seventy-seven species to the Canarian fauna.

On his return to England, Crotch accepted an appointment in the University library at Cambridge, and devoted his leisure time to the study of the species of British *Coleoptera*, and commenced a laborious investigation of the ancient literature of entomology, with a view to establishing a correct nomenclature for our species. At an early period of these researches he had become dissatisfied with his published Catalogue of British *Coleoptera*, and for this reason, produced in 1866 a second edition, in which some of the undoubted errors and omissions of the first edition were remedied, and which was intended to serve as a temporary stop-gap till he should be able to complete a more elaborate and perfect edition.

In 1865 he visited Spain, in company with several other members of the Entomological Society of France; and in 1870 he repeated his visit to that productive country in company with an English friend, and on both occasions brought back with him collections of *Coleoptera*, remarkable, not only for their extent, but for the number of rare and new species they contained.

In the year 1867 Crotch published, in the Proceedings of the Zoological Society of London, a complete enumeration of the *Coleoptera* of the Azores, accompanied by descriptions of new species found there by Messrs. Godman and Brewer.

Although his collections had by this time become very considerable and required much of his time, Crotch pursued with untiring industry his studies of the literature of entomology, and published, besides a large number of corrections of the Catalogue of *Coleoptera* of Gemminger and Von Harold, a list of all the *Coleoptera* of the group *Adephaga*, described from the year 1758—1821, referring them to their modern genera; this he did with the hope of assisting others who, like himself, were engaged in attempting to cleanse the Augean stable of entomological nomenclature. This work was published at Cambridge in 1871, and by this time he was recognized by the best judges to be the man who had a more detailed acquaintance with the ancient literature of entomology than any other living student. This paper had, indeed, been preceded by one published in the Transactions of the Entomological Society of London, entitled "the genera of *Coleoptera* studied chronologically (1735—1801)," which was, and probably will long continue to be, of great use by pointing out to Zoologists the great difficulties that encumber any attempt to deal in a systematic manner with entomological nomenclature. In 1871 he also published a synopsis containing abbreviated descriptions of all the new species of *Coleoptera* belonging to the European and Mediterranean faunas that had been described during the year 1868; this little production cost a vast amount of investigation; and it is much to be regretted that it has not been continued by some other student, as Crotch had hoped it would be. By this time, Crotch, whose enthusiasm for the study of entomology seemed to take always wider and wider limits, had engaged himself in the investi-

gation of the *Coccinellidæ* and *Erotylidæ* of the entire world; he speedily amassed very important collections in these groups, and published in 1871 a list of the *Coccinellidæ* of the world, and also prepared for publication a revision of the family *Coccinellidæ*, which, though not yet published, will, it is expected, be shortly issued from the Cambridge University press.

At this time he was acting as sub-editor of the *Zoological Record*. In the autumn of 1872, he left Europe with the intention of making an entomological journey round the world, and passed to the United States, where he spent the winter of 1872-3 in studying the *Coleoptera* of North America. So energetically did he carry on these studies that he was able to publish a catalogue called a "Check list of the *Coleoptera* of America, north of Mexico;" as well as various extensive memoirs on important groups of the North American Coleopterous fauna, viz.: "Materials for the study of the *Phytophaga* of the United States," "Notes on the species of *Buprestidæ* found in the United States;" both of which have been published in the proceedings of the Academy of Natural Sciences of Philadelphia: also "Synopsis of the *Erotylidæ* of boreal America," "Synopsis of the *Endomychidæ* of the United States," "Revision of the *Coccinellidæ* of the United States," and "Revision of the *Dytiscidæ* of the United States," all of which were published in the Transactions of the American Entomological Society. During the same winter he also read a paper before the American Philosophical Society, "On the arrangement of the families of *Coleoptera*." In the production of these papers, he no doubt received much assistance from the great American coleopterists, Messrs. Leconte and Horn; but, making all due allowance for this, these works exhibit an amount of activity almost without parallel, we should think, in the annals of entomological literature. In the spring of 1873, he went to California, and passed the summer in making an entomological exploration of that country, Oregon, and the Fraser River district. In this task he was most successful, for he not only brought back with him a vast amount of material, but it is estimated that this contained no less than three hundred species new to science. Returning to the Atlantic coast in the autumn of last year, he commenced work at the Cambridge Museum of Comparative Zoology, where he had accepted an appointment offered him by Agassiz. But, after the death of Agassiz, his connection with the Museum soon terminated; as by this time the pulmonary complaint which had attacked him during his first winter in the United States, declared itself in an unmistakeable manner, and made such rapid progress, that he died at Philadelphia on the 16th of June last.

Crotch was a man of genial and courageous disposition, and to such of us as have lost in him a friend as well as the entomologist, the loss is indeed a grievous one. His powers of work were enormous, and there can be no doubt that he often (we might say habitually) overtaxed himself; he really appeared to have no thought of taking care of himself, and it is no doubt to these things, in conjunction with the trying climate of the United States during the winter, that the development of the illness which has deprived us of him is to be attributed. He was, we believe, only 33 years of age, and was cut off at the moment when his faculties might have been expected to have taken a still higher development; had his judgment matured and become equal to his other powers, he would have ranked amongst the very first of the entomologists of the world. As he was, "take him for all in all, we shall not look upon his like again."

DESCRIPTION OF THE LARVA AND PUPA OF *DEILEPHILA*
EUPHORBIEÆ.

BY WILLIAM BUCKLER.

In 1859, I figured this species from a larva sent me by a correspondent in Jersey, but, none the less, I was desirous to see a living example again, for in the interval I knew my eyes had been educated continually to see more and more in my subjects, and I felt I might then have passed over something in such a difficult task, which I could now detect at once.

My surprise, therefore, was more than equalled by my delight when on the 7th of August, 1872, there came to me four larvæ, which a few days before had been found feeding on *Euphorbia cyparissias* in the Forest of Fontainebleau by Mr. Evan John, whose kindness in taking the pains to bring them to England as a contribution to my work I remember most gratefully.

On their journey to me, they had stripped to the bare stems the food put in with them, and appeared restless and hungry; my first precaution was to separate them, and supply them with some *Euphorbia peplus* gathered from the garden, and on this substituted food three of them began to satisfy their cravings; the largest, however, refused to touch it, and, as it appeared to be full fed, I set to work at once to secure its portrait; an operation which, from the complicated nature of its details, and the irritability and restlessness of the subject, was not completed till the afternoon of the next day, when I placed the larva in a pot with sand and food, and in a few hours it spun itself up on the sand under some spurge and moss.

Meanwhile, a friend had kindly undertaken for me an expedition to the coast, bringing back a good supply of plants as well as gathered branches of *Euphorbia paralias* and *portlandica*; the plants I potted, and the branches I gave to the feeding larvæ, and it was a pleasure to witness their enjoyment of this more congenial fare. The *Euphorbia peplus* they had been eating had evidently been regarded as a mere whet—and their appetite now seemed insatiable; each larva embraced the sea-spurge with all its legs, and ate voraciously, and at length, when compelled to stop, it would go to sleep without change of position, and with a partly devoured leaf in its jaws; and then, after a few minutes' repose, it would wake up, finish the leaf, and attack whatever came next—leaves or seed vessels—most vigorously; there was no walking about, the only movement was a step or two backward as the stem shortened beneath its jaws

From this time their behaviour was most satisfactory. Luckily they were all of different ages, though all in their last moult, and I was able, without anxiety for the others, to devote my whole energies to one at a time; and so in turn they all sat to me—or rather I may say ate before me—during eight days while I was closely at work, and never sulked or shrank when the sun shone on them, or when for closer inspection I took them in my hand: only as each matured, and ceased feeding, it grew active and lively, and exhibited its capacity of walking at a great pace for a day or two before settling down to its change.

The smallest of the four had, apparently, just undergone its last moult when it reached me, and it was then just one and a quarter inch long; the dates for their making up were respectively August 8th, 14th, 17th, and 18th. The earliest pupa was figured on the 21st of October, when, on searching for the others, the latest larva was found to have died without turning, although it had made a perfect cocoon.

Emboldened by a former success in forcing several *galii* to perfection in 1870—71, I resolved to hazard the three pupæ of *euphorbiæ* in a similar experiment. On the evening of the day in which I had disturbed them, I packed them in the forcing box with moss, and placed them at first on the iron plate of a kitchen stove over the boiler; here the situation was warm through the greater part of the night, and quite hot by day, when the bottom of the box was elevated two inches above the hot plate by aid of two strips of wood on which the box rested; here they were damped with lukewarm water twice a day; on the 23rd November, a fine and perfect moth came from the earliest pupa, but after that my efforts were baffled; the two remaining pupæ continued lively, but the moths would not appear; I moved the box to a place before my sitting room fire, but without effect; and at last I came to the conclusion that *I ought not to have begun the forcing till the weather had become dry and frosty*; then the heat would have had due effect, but as it was, the great humidity of the atmosphere had prevented this, and sufficient heat had not reached the pupæ to develop the imago in them at once.

After continuing my forcing till the end of December, I put the pupæ aside to wait for summer, but before that time came they had died.

Of course I can say nothing of the larva when young, but I may notice the appearance of the two smaller ones when they first came to me. The ground colour of the smallest was black; the next in size was blackish-green, and with a multitude of small bright yellow

dots, contrasted with larger spots of yellow tinged centrally with a rosy hue: for the rest I shall describe one full-grown larva, and mention the variations of detail in the others, as each preserved its individual points of difference to the last.

The full-grown larva measured from three to three and a quarter inches in length, being in proportion a trifle more slender than *galii*, though otherwise similar in form, being plump and cylindrical, tapering considerably from the fourth segment to the head, which is the smallest segment, and is rounded in outline; tapering a little also at the two hinder segments, the twelfth having a rough, blunt-tipped horn curving a little backwards; each segment from the fifth to the twelfth is subdivided into seven rings by well-defined wrinkles, the front ring equal in width to three or four of the others; the skin generally smooth and shining; the anal pair of legs larger than each ventral pair, and of a squarish form; the segments appear more plump and swelling on the ventral than on the dorsal surface. As to colour, two individuals were of the same type, the ground colour of the skin only varying in intensity from a bronze-green to a deeper blackish-bronze; the head blood-red, the mouth and base of papillæ pale yellow, the former margined above and below, and the latter surrounded, with black; the dorsal stripe blood-red in colour, widened on the second segment in a curve on either side downwards, suggestive of a plate, but from thence continued of about uniform width to the anal flap, which is also red; the horn is of the same colour, but with black tip, and glistening; in these larvæ the sub-dorsal region bore a row of very blunt wedge-shaped red marks, widest at the hinder part, and pointing forwards, and a row of large roundish or dumpy pear-shaped bright ochreous-yellow spots slightly tinged above with pink (on the twelfth segment of a longer pear-shape, with the stem pointing to the horn), and below these another such row only paler, and irregular in shape from a fold in the skin, these spots on each front broad ring being much surrounded with black; below these come a few small dots of white, and then in its place—rather behind again—the whitish oval spiracle; the hinder narrow rings of each segment—whether in the red wedges or on the ground colour—bore transverse rows of thickly set yellow dots: the puffed region below the spiracles showed red interruptedly, but without any dots; beneath this again, a patch of the dark ground colour, sprinkled with white dots; the tips of the ventral and anal legs blood-red; the anterior legs orange-ochreous tipped with black.

The variety which may be termed the *red*, from the great quantity

it possessed of this colour, had the first or broad ring of each segment of a black ground colour, and the narrow rings of a bronzy-green, the wedge shapes of red in the sub-dorsal region extended along each segment from their greatest breadth at the last ring to the blunt apex close to the broad front ring; the dots of yellow above and whitish below, and the double series of large spots were as described above; all the rings suddenly interrupted by the inflated and rather tortuous broad sub-spiracular region coloured red; below this on each segment came a pear-shaped patch of bronzy-green dotted with white, all the rest of the belly and legs were red, but inclining at the segmental divisions to deep ochreous or greenish-ochreous, as the above-mentioned red wedge marks did in the same place; a few yellow dots were at the segmental divisions in the sub-spiracular region; the black plate on the second segment margined with red; the red head and dorsal stripe, &c., as in the other varieties.

The black variety had no sub-dorsal wedge marks; the first ring in each segment with black ground, the others with greenish-black ground, dotted and spotted with bright sulphur-yellow above, and white below; very little of the sub-spiracular region was inflated, and was coloured crimson-red and ochreous, the red in the middle blending gently with the ochreous at each segmental division; the anterior edge of the second segment yellow, a large round black spot on the top of each lobe of the crimson head, the anterior half of the anal legs black, the rest crimson, the same coloured dorsal stripe quite narrow, and the anal flap black margined with crimson.

I must not now omit to mention a handsome variety of this larva, brought home in spirits from Cairo by Mr. Jenner Fust, which I thankfully received in May, 1871, through my friend Mr. Hellins, and figured; this had the broad ring on each segment black, the ground colour on the others of the deepest blackish-olive; the head, the plate on the second segment, the dorsal stripe, the legs, anal flap and caudal horn blood-red; the double series of large spots creamy-whitish; the upper rows of small dots pale yellow, the lower rows white; the sub-dorsal truncated-wedge shapes of deep ochreous, and largely developed; the inflated sub-spiracular region, belly, and ventral legs, of deep ochreous or buff colour; a pear-shaped blotch of dark olive dotted with white situated below the sub-spiracular region on each segment; the ventral legs tipped with red, anterior legs red.

The cocoons were of a very firm texture, spun with strong and coarse silk threads attached to some leaves of spurge above, and with

some sand interwoven, and in each instance firmly fastened to the side of the pot, and sunk about half-an-inch below the surface of the sand, so that *it* was immovable, though the sand was loose; the interior of the cocoons beautifully smooth, with fine silken lining.

The pupa one and five-eighths of an inch in length, and half-an-inch in diameter, tapering a little from the thorax towards the frontal extremity, where it is rather smooth; the wing cases pressed close to the body; the abdominal rings in tolerable relief; the outline tapers a little near the anal tip, which ends in a broad, flattish, downward-curved spike pointed at its extremity, the remains, apparently, of the caudal horn of the larva.

The colour a dingy, deep brick-red above, fading a little beneath to more of a flesh colour, and thickly covered with minute blackish punctures; the wing-covers dark brownish much freckled and finely streaked with blackish, as are also the head, antennæ, eye, and leg- and trunk-cases; the segmental divisions of the abdomen dull purplish-red, and quite smooth, while the parts between them are roughened by black pits or punctures on a rather shining ground; a dorsal line of the ground colour is visible on the back of the thorax; the spiracles black.

Emsworth: May 13th, 1874.

DESCRIPTIONS OF TWO NEW SPECIES OF HETEROCEROUS *LEPIDOPTERA* IN THE COLLECTION OF THE BRITISH MUSEUM.

BY A. G. BUTLER, F.L.S.

EUCYANE EGAENSIS, *n. sp.*

Wings above black-brown, basal area and body bright metallic blue-green; primaries with a broad, oblique, transverse, carmine band, clouded with pale rosy scales; apex narrowly white; secondaries with costa grey; a broad, irregular, oblique, sub-apical, carmine fasciole; fringe varied by three white spots; wings below as above; body with legs and palpi brown above, white below. Abdomen with broad, ventral, carmine band; segments white-edged. Expanse of wings, 2" 2".

Ega (Bates). Two specimens.

B. M.

Allied to *E. temperata*, Wlk., from Tapajos, but with broader carmine band in primaries, not varied with white; and a broader expanse of metallic-green at the base of the wings.

CALLIODES RUBROPICTA, *n. sp.*

Allied to *C. orbigera* of Guenée, but considerably larger; the costa darker, the discal macular white band obsolete; the postmedian oblique transverse band continued to apex of primaries, the ocellus much larger, the yellow iris not confined

by the black line, excepting towards costa; the central oblique black streak and the black border of the postmedian white band strongly waved; the broad dark brown discal band boldly arched so as to form two semicircular patches across each wing, edged externally and irrorated internally with dead gold; submarginal line widened, irregular, but not zigzag; a patch of rosy hair-scales on abdominal margin; fringe of secondaries sordid except at apex. Abdomen above rosy, with sub-triangular basal brown patch and lateral segmental blackish spots; wings below smoky-brown; a large, rounded, discocellular spot on each wing, bounded externally by a white nebulous patch, interrupted (indistinctly on primaries, but distinctly on secondaries) by the brown nervures, and an angulated transverse band; two waved discal bars; fringe cream-colour; edge of outer margin undulated; primaries with a broad, interno-basal, rosy-flushed, cream-coloured patch; secondaries with a broad, pyriform, rosy patch on the abdominal margin; body below grey-brown. Expanse 2" 11".

Moreton Bay (Strange).

B. M.

We have one example of this species in the collection, but Mr. Walker informs me that there is a second in that of Mr. Chapman, of Glasgow: Mr. Walker originally described it briefly as the female of *C. orbigera*, but after seeing this second example, he was satisfied that it was a different species. I have not the slightest doubt that the two insects are abundantly distinct.

British Museum: June, 1874.

DESCRIPTIONS OF THREE NEW SPECIES OF *EROTYLIDÆ*.

BY GEORGE LEWIS.

1. *CYRTOTRIPLAX NIPONENSIS*. *Ovata, nigra, nitida. Capite thoraceque parce punctatis, elytris punctato-striatis, interstitiis evidenter sed parce punctatis. Scutello sublævi. Subtus vix punctata. Palpis nigro-piceis, coxis anterioribus rufo-piceis. Long. corp. 2½ lin.*

This insect is readily distinguished from its congeners by its narrower form, wholly black and shining colour, and longer and more slender legs.

Hab.: Hiogo, Japan. A single specimen from a fungus near Maiyasan Temple; October, 1871.

2. *C. CONSOBRINA*. *C. bipustulatae proxime affinis, at paulo latior, antennis pedibusque nigris, robustioribus, capite thoraceque paulo profundius punctatis; elytrorum maculâ sanguineâ latiori a basi necnon suturâ lute separatâ, marginem externam solùm attingenti.*

Long. corp. 2—2½ lin.

This species is broader in the head and thorax than the Fabrician type, and the elytra are not so narrowed before the apex. The an-

tennæ and legs are stouter, and the red band leaves a broad black margin both at the suture and at the base of the elytra, and touches the margin only at the outer edge.

Hab.: Irkutsk, South Siberia, and is apparently not rare.

3. *EPISCAPHIA TAISHOENSIS*. *Oblonga, nigra, haud pubescens, sparse sub-fortiter punctata. Thorace sub-transverso vix torte marginato, basi sinuato. Elytrorum macula anterior maculæ anteriori E. Fortunei vix simili, at posterior paulo minus undulata. Scutello in medio punctis raris impresso. Antennis pedibusque robustioribus, totis nigris.*

Long. corp. 8 lin.; lat. 3 lin.

This species is half as broad again as *E. Fortunei*, Crotch, with proportionally thicker legs and antennæ; and, while the red bands of the elytra closely accord in general outline, the pattern is less crenulate and defined.

Hab.: Chiosan and Tsu-sima; islands in the Straits of Korea.

Norbiton: July, 1874.

DESCRIPTIONS OF TWO NEW GENERA AND SOME NEW SPECIES OF PSELAPHIDÆ.

BY D. SHARP, M.B.

TETRACIS, nov. gen.

Antennæ 11-articulatæ, elongatæ, apicem versus leviter incrassatæ, basi approximatæ. Palpi maxillares sat elongati, articulo 2º medio abrupte curvato, parte apicali incrassata extus obtuse angulata, seta brevi instructa; articulo 3º latitudine paulo longiore, extus apicem versus obtuse angulato, angulo seta brevi instructo; articulo 4º precedente paulo longiore, apice extus oblique truncato intus peracuminato, extus medio seta brevissima instructo. Caput ante oculos deflexum, sub oculos tuberculo parvo instructum, pone oculos acute prominens, tuberculis frontalibus brevibus, connatis. Abdomen sat elongatum, marginatum, segmentis dorsalibus quinque perspicuis, quorum duo basalia sat elongata, tria ultima paulo breviora deflexa; segmentis ventralibus 5 perspicuis, tribus ultimis perbrevibus. Pedes elongati, trochanteribus intermediis elongatis, coxis posticis distantibus, a femoribus trochanteribus separatis; unguiculis duobus parvis.

This genus must be placed between *Tmesiphorus* and *Ctenistes*. The structure of the maxillary palpi scarcely differs from that of *Tmesiphorus carinatus*, but the connate frontal tubercles distinguish it from *Tmesiphorus*. From *Ctenistes* the structure of the maxillary

palpi will readily separate it. It appears also to be allied to *Centrotoma*, but the angulated joints of the maxillary palpi separate it therefrom.

TETRACIS COMPLEX, *n. sp.*

Rufescens, nitidus, prothorace subtransverso; elytris stria suturali, striaque discoidali integra, basi profunde impressis foreo latisque; abdomine segmentis 1 et 2 supra et infra basi dense glanduloso pubescentibus.

Long. corp. ultra 2 mm.

Antennæ much longer than head and thorax, rather stout, the basal joint nearly as long as the two following joints together, a little stouter than the second joint; second joint distinctly longer than the third, but scarcely thicker than it; joints four to eight not differing from one another; joints nine and ten elongate, a little stouter than the preceding joints, each longer than broad; eleventh joint elongate, distinctly stouter than the tenth joint, and as long as the ninth and tenth together. Head, with the vertex elevated but short, with the impressions very obsolete. Thorax narrower than the elytra, but distinctly broader than the head and eyes, not so long as broad, at the base in the middle, with a dense patch of glandular pubescence, and at the hind angles with similar pubescence extending downwards as far as the coxæ. Elytra longer than the thorax, a little narrowed at the shoulders.

The specimen described is, no doubt, a male: it has the metasternum longitudinally sulcate. The antennæ of the female may very probably differ from the above description.

A single specimen of this highly interesting species was sent me from Tangiers, by M. Olces, as being the *Ctenistes integricollis* of Fairmaire. Fairmaire has, however, figured both the *C. integricollis* and its magnified palpus, and these figures leave no doubt that it is a very different insect from the one here described.

PSELAPHUS SAULCYI, *n. sp.*

Castaneus, minus nitidus; palpis maxillaribus articulo ultimo valde elongato, parte apicali abrupte dilatata, breviter ovali; antennis articulo nono precedente (in femina?) latiore sed haud duplo longiore; prothorace elongato haud impresso; elytris thorace paulo longioribus disco carinatis; mesosterni medisterno valde elongato medio haud longitudinaliter carinato.

Long. corp. vix 2 mm.

Dark reddish-chestnut, with the head and thorax narrow, and the after-body very broad; on the upper-side the head, thorax, and elytra are sub-opaque, the hind body shining; the maxillary palpi are very elongate, the dilated apical portion of their terminal joint is only about one-fourth of the length of the extremely slender basal portion; the ninth joint of the antennæ is not much longer than broad.

This highly interesting insect is apparently most nearly allied to the *P. Diecki*, Sauley, and its general form resembles greatly the

figure of that species as given on plate ii, f. 6 of Von Heyden's Reise; the after-body of *P. Sauleyi* is, however, notably broader than the figure represents that of *Diecki*. The single individual I have seen of this species has the anterior trochanters very prominent, and acutely angulated, and is particularly remarkable by the structure of its metasternum, the central portion of which is prominent and flattened, and forms as it were two oval plates which appear to be covered with a peculiar glandular matter. The basal segment of the hind body is not in the least impressed in the middle, and this has raised some little doubts in my mind as to the sex of this individual; I feel, however, pretty certain that it is a male.

I captured my single specimen of this, which is, perhaps, the most remarkable species of the genus, at Reynosa, in the north of Spain, and I have named it with much pleasure in honour of M. de Sauley, who has described also some highly remarkable forms of this genus from the same country.

BYTHINUS ŒDIPUS, *n. sp.*

Rufescens; vertice lævigato; elytris parce fortiter punctatis; prothorace lato, basin versus valde angustato. Long. 1½ mm.

Mus: antennarum articulo primo cylindrico leviter incrassato, secundo sub-quadrato, precedente fere latiore, angulis internis subrectis (i. e., anteriore subobtusos, posteriore acuto), margine interno quam externo haud brevior, acuminato: femoribus omnibus valde inflatis; tibiis anticis ante apicem subito attenuatis, posterioribus incrassatis intus medio dente magno, apice interno acuto.

Patria, Hispania (Reynosa).

This species is highly remarkable by the structure of its legs, and in this respect the Portuguese *B. lusitanicus*, Sauley, appears to be allied to it; but, if I correctly interpret de Sauley's description, the second joint of the antenna is differently shaped in that species. The species should be placed near *B. clavicornis* and *B. crassicornis*.

BYTHINUS CROTTI, *n. sp.*

Rufescens; vertice lævigato; prothorace magno, basin versus valde angustato; elytris parce minus distincte punctatis; oculis (maris) parvis. Long. corp. 1½ mm.

Mus: antennarum articulis duobus basalibus simplicibus, primo elongato; femoribus omnibus incrassatis; tibiis anterioribus ante apicem subito angustatis; posterioribus gracilibus elongatis.

Patria, Hispania (Reynosa).

A single specimen of this species was given to me by my lamented friend G. R. Crotch, who captured it at Reynosa; and I subsequently myself found a single individual in the same locality.

BYTHINUS MANUELI, n. sp.

Rufescens; postice plus minusve nigricans; prothorace antice impunctato; elytris obsolete punctatis. Long. corp. $1\frac{1}{3}$ mm.

Mas: antennarum articulo primo incrassato, intus apice tuberculo minimo; 2° magno, primo latiore, latitudine vix brevior, margine interno convexo quam externo paulo longiore; tibiis anterioribus intus ante apicem minus fortiter angustatis, pedibus posterioribus gracilibus.

B. nodicorni peraffinis; maris antennarum articulo 2° longiore, margine interno elongato haud acuminato, facile distinguendus.

Patria, Sabaudia.

This *Bythinus* was captured during the month of May last at Albertville, Savoy, by Count de Manuel and myself, and I have great pleasure in naming it in honour of my hospitable and genial friend.

BATRISUS SIBIRICUS, n. sp.

Magnitudo et statura B. formicarii. Rufus, elytris exceptis, subopacus; antennæ crassiusculæ apice leviter clavatæ; capite punctato, vertice sat elevato, subtilissime carinato; elytris parce, fortiter sed parum profunde punctatis; abdomine pubescentia depressa subtili sat dense vestito. Long. corp. 3 mm.

Mas: antennarum articulo ultimo intus medio tuberculo obsoleto; femoribus intermediis arcuatis; tibiis omnibus basi compressis, intermediis apice unco brevi sat valido armatis.

Fem. incog.

Antennæ long and stout, joints 2—8 bead-like. Head much elevated over the insertion of the antennæ, the vertex rather strongly elevated, and with an extremely fine line along its middle, eyes in front moderately large, but truncate behind, and with the head projecting behind them as a fine acuminate tubercle; when viewed from the front the appearance is exactly as if the eyes themselves were spined or angulated. Thorax similar to that of *B. formicarius*, but with the middle fovea indistinct, and the front parts more distinctly punctured. Elytra redder and more shining than the rest of the surface, sparingly but distinctly (though not deeply) punctured. First dorsal segment of the hind body very finely margined at the sides, without impressions at its base, but with two very short indistinct raised lines in the middle behind the elytra, and outside these with a longer, very fine, oblique line on each side.

I have seen but a single specimen of this fine species; it comes from Eastern Siberia. Though clearly allied to *B. formicarius*, it is very distinct therefrom. In connection with this insect it may be

worth while to mention, that the figure of *B. formicarius* given by Aubé (Psel. Mon., pl. ix, f. 1) is extremely deceptive; the antennæ are those of a male individual, while the legs are not those of *B. formicarius*, either ♂ or ♀, and are indeed so different, that they must have been entirely supplied by the imagination of the artist, who, however, was Aubé himself.

TROGASTER, *nov. gen.*

Corpus elongatum, sub-depressum. Antennæ basi valde distantes. Caput sub-triangularè, nullo modo rostratum. Palpi maxillares breves. Thorax cordatus. Coxis anterioribus elongatis longe exsertis. Prosternum magnum. Abdomen marginatum, segmentis 5 dorsalibus perspicuis sed quinto parvo transverso, fere condito, segmentis 4 primis sub-æqualibus; segmentis ventralibus sex perspicuis. Pedes trochanteribus brevibus, coxis posticis prominentibus, basi contiguus; tarsi unguiculo instructi.

This genus is allied to *Euplectus*, but differs therefrom by the peculiarly prominent anterior coxæ: its facies is rather that of *Trichonyx*. I have only been able to make a very imperfect examination of the single individual I possess, but I have no doubt a complete knowledge of its characters will prove it to be a very distinct genus. Indeed, it possesses slender much exserted anterior coxæ in common with the North American *Rhexius insculptus*, and the Australian *Batrisus hamatus*, King (not a member of the genus *Batrisus*); and I believe its true position will be found to be in the neighbourhood of those insects.

TROGASTER ABERRANS, *n. sp.*

Castaneus; oculis minutis; prothorace lateribus medio angulatis, disco longitudinaliter canaliculato; clytris prothorace paulo longioribus, stria suturali integra.

Long. corp. 2 mm.

Mas: abdomine segmentis ventralibus 3 et 4 medio depressis; segmento 5° profunde emarginato, medio brevissimo; 6° magno, fovea maxima, circulari, nitida insigne.

Antennæ shorter than head and thorax, 1st and 2nd joints longer and stouter than the following, the 1st about twice as long as the 2nd, joints 3—8 small and very short, scarcely differing from one another, 9th broader and longer than the 8th, sub-quadrate, 10th joint shorter but broader than 9th, strongly transverse, 11th joint large, stouter than the 10th, and longer than 9th and 10th together. Head short and broad, the elevation on each side over the antenna abruptly defined inwardly, so as to form a kind of deep impression or fovea, the vertex in the middle with an indistinct fovea; the eyes are very small, and placed in the middle of the

sides at a distance from the hind angles. The thorax is elongate, longer than broad, though only a little narrower than the elytra, the sides are much narrowed towards the front (so that the front part of the thorax forms a sort of short neck), and they project in the middle in the form of a prominent acute tubercle, behind which the thorax is abruptly narrowed; along the middle is a deep channel, and at each side behind the lateral angle is a large deep impression. The elytra are but little longer than the thorax, a little narrowed at the shoulders; each has a deeply impressed sutural stria, and the humeral angle is prominent, and within this the surface is depressed, and the inner margin of the depression extends towards the extremity as a kind of plica. The first segment of the hind body is in the middle close behind the extremity of the elytra transversely impressed, and the impression is filled with fine hairs. The legs are moderately long, the tarsi rather more than half the length of the tibiæ.

A single example of this very curious Pselaphid was sent me by that most successful collector the late E. Raymond, from Corsica, under the name of *Trichonyx aberrans*; the species, however, does not appear (though this was five or six years ago) to have yet found a describer.

Eccles, Thornhill, Dumfries:

August 8th, 1874.

Note on a curious race of Harpalus latus, L.—I am indebted to Mr. George Lewis for a ♀ example of a most interesting variety (or race) of the above-mentioned common insect, apparently hitherto unnoticed, and which is so conspicuously different from the type, that I propose to give it a name (*metallescens*), especially as some five or six of it were taken, all (as I am informed) exactly alike. These specimens were found during the past summer by a relative of Mr. Lewis's, at Folkestone. The individual in my possession is hard and mature: its legs are of a brighter yellow than usual; the whole upper surface is of a silky greenish tone, the thorax being especially green at the hinder angles; the thorax itself seems scarcely so transverse as usual, being appreciably contracted behind, and having its posterior angles not nearly so rounded off as in ordinary examples; the punctuation at its base is almost obsolete and confined to the foreæ, and the foreæ themselves are much less conspicuous. —E. C. RYE, Parkfield, Putney: August, 1874.

Note on a variety of Liodes humeralis.—I am also indebted to Mr. Lewis for a specimen of the var. *globosa*, Payk., of this common species, not hitherto recorded as British, though the other described var. (entirely rufo-castaneous, with lighter indications of the usual shoulder spot), *clavipes*, Hbst., is, according to Erichson, represented by *Leiodes armata*, Steph. (which, *teste* Wat. Cat., is? *Anisotoma rugosa*, in Steph. Coll.). In the var. *globosa*, the disc of the thorax is more or less black, and the humeral spots are so confluent as to invade the whole elytra except the apex, which is dark; there is also a trace of dark colour along the suture. The insect is quite hard and mature, but the "var." *clavipes* seems probably nothing but an immature individual.—ID.

Coccinella eating Lepidopterous ova.—A male *Coccinella bipunctata* has been engaged, during the last four days, in eating a batch of about sixty eggs of a *Lepidopteron*, laid on the glass of an out-house window here: it finished the last of them a little before dusk yesterday afternoon.—J. E. FLETCHER, Pitmaston Road, Worcester: *August 4th*, 1874.

Re-occurrence of Halonota grandævana at Hartlepool.—On the 26th June I took a specimen of this *Tortrix*, and on the 6th of July I met with another, but I was by no means certain I had found the head quarters of the insect. This proved to be the case, for, on trying a fresh locality, a short distance from where I had taken the two first specimens, I had the good fortune, on the 15th July, to meet with ten specimens, and the following night, aided by a friend, I captured forty-seven! Many, however, were somewhat worn, and I could only regret I had not found out these head quarters a fortnight earlier. I took two or three splendidly marked females, which seem to be generally larger than the males.

I am not at all surprised that the insect has so seldom been taken, for it does not fly before dusk, and then only a sort of jerking flight of a few yards *very close to the ground*. Afterwards, I discovered that I could take them more easily by looking over the leaves of the coltsfoot with a lantern, and by this means I got some very fine specimens sitting on the *top* of the leaves, generally on the smallest and most stunted plants, the more luxuriant plants being seldom patronized.—J. GARDNER, 8, Friar Terrace, Hartlepool: *July 17th*, 1874.

Elachista serricornis, &c., at Witherslack.—I spent the 25th and 26th July at Witherslack, and, though the weather was too hot for day work, by sweeping before the sun got too hot I obtained two *Elachista serricornis* on the 25th, and two more on the evening of the 26th. *Rhynchospora* was plentiful, but I only saw these four specimens of *serricornis*. Amongst my other captures I may mention *Hyphenodes turfosalis*, *Cnephasia lepidana* and *icterana*, *Gelechia ericinella*, in plenty; single specimens of *Coleophora pyrrhulipennella* and *apicella*, *Caloptria expallidana*, *Eupæcilia sodaliana*, &c. Amongst the sorrel at dusk were several *Opostega salaciella*, but it was not easy to see them when in a white net. I only took two *Cnephasia Penziana* at rest; they seem to be scarce this season.—J. B. HODGKINSON, 15, Spring Bank, Preston: *August 3rd*, 1874.

Note on Endopisa nigricana.—At page 198 of the 9th vol. of this Magazine, I recorded the precocious appearance, within three weeks from their larval stage, of six moths of this species; the bulk of the moths from the same lot of larvæ came out at the normal time,—during June and beginning of July, 1873—but the last individual remained twenty-two months in cocoon, and assumed the imago state on the 1st of June this year (1874). They were all kept together, and under like conditions throughout.—J. E. FLETCHER, Pitmaston Road, St. John's, Worcester: *25th July*, 1874.

Occurrence of Crymodes exulis.—I have again sugared (for sixteen nights) in the same locality where I have before obtained this species, near Loch Laggan, Inverness-shire, but only captured a single male this season, which came to sugar near midnight on the 7th inst. Moths were extremely scarce, and the weather very bad.—NICHOLAS COOKE, Gorsey Hey, Liscard, near Birkenhead.—*21st July*, 1874.

Natural History of Larentia olivata.—Several years ago I bred this species, but took scarcely any notes of it, and was, therefore, very glad to receive from Mrs. Wollaston, at the end of last August, some eggs which she had obtained from a moth taken at Teignmouth.

The larvæ hatched, but not all at once, during the second week in September, and were kept outdoors on a growing plant of *Galium mollugo*; the winter being mild, they continued to feed slowly all the time, and seemed to be content with withered leaves, when green ones failed them; by the last week in April they were full-fed, and most of them became pupæ during the first week in May. The larva of this species, like that of *pectinataria*, is extremely sluggish, as might, indeed, be concluded from a glance at its form.

The egg of *olivata* is rather small for the moth, of an oval form, plump; the shell glistening, with no raised reticulation, but yet covered with the little facets as it were, which should be enclosed by reticulation; colour at first pale straw; then a palish vermilion-red; at last turning to a pale livid hue.

The young larva is pale vermilion-red, with blackish head, but this gay colour does not last long, soon giving way to the dingy appearance worn for the remainder of this stage, and the description of the full-grown larva will suffice for it altogether.

The full-grown larva is rather over five-eighths of an inch in length, very stumpy in figure, rugose and warty, with segmental divisions distinct, head not so wide as second, with lobes rounded, although narrow, the front and hind segments tapering very slightly.

The ground colour is a pale ochreous, mottled with deeper brown, and marked longitudinally with lines of darker brown; the dorsal line begins blackish on the second, becomes dark brown after that and is continuous up to the fourth, then it becomes a series of dashes on the front part of each segment up to the tenth, thence again it becomes continuous; on either side of the dorsal line come a sub-dorsal and lateral similar line, continuous to the end of the fourth, and from the tenth to thirteenth, but on the intermediate segments interrupted and turned aside by the warts; in this manner the sub-dorsal line is pushed in towards the dorsal at the middle of each segment, giving somewhat the look of a curved X, only the limbs of the letter do not touch; the lower or lateral dark line is also waved in its course by similar obstructions; the usual dots are large tubercular warts of the ground colour, and furnished with stiff bristles, and, on segments six to nine, there are besides pairs of conspicuous, transverse, oval warts paler than the ground; the spiracles are inconspicuous, being small and blackish; the head brownish with dusky freckles, and set with bristles; the belly more mottled than the back, and with traces of a central, and pair of lateral, dusky lines. In its usual position of rest, the larva keeps the head and thoracic segments all humped together.

The cocoon is very slight, formed on the surface of the soil, under a leaf or stem for covering, and with particles of earth, &c., drawn in; the pupa is three-eighths of an inch long, the thorax swelling above the line of the back, the eyes somewhat projecting, the abdomen tapering off gradually, and ending in a small blunt spike furnished with two large and six small spines with curled tips, by which the pupa is attached to the silk of the cocoon; the colour bright reddish, the abdomen deeper reddish, the spike dark brown.—JOHN HELLINS, Exeter: June 2nd, 1874.

Natural History of Asthena Blomeraria.—To Mr. W. H. Grigg, of Bristol, is due the credit of discovering the larva and food of this species, which has baffled us so long.

In July last year Mr. Grigg took the moths in some numbers, and found them free to lay their eggs in chip boxes, and he most kindly sent me a good supply of them, together with information as to every kind of green thing that grew in their locality; when, therefore, the larvæ hatched they were supplied with leaves of all the trees and plants which had been suggested, but they would touch none of them; we then thought of lichens, and supplied them also, but with no better success; all our young larvæ died of starvation.

However, in September, Mr. Grigg visited the locality again, and, after a good deal of hard work, succeeded in beating from some wych elms growing there a large number of Geometers; most of them proved to be *Abraxas ulmata*, but with them were several others of a smaller species, which, from their likeness to the larva of *Venusia cambricaria*, gave us great hopes. They were, however, horribly ichneumonated, nine out of every ten being thus infested; but, luckily, some three or four sound ones were secured, and this summer removed all doubt by appearing in the imago state as *A. Blomeraria*.

Being now sure of the food, Mr. Grigg again procured eggs this summer, and generously halved his supply with me; but the young larvæ in confinement are so abominably restless and obstinate, that, although I had considerably more than a hundred eggs, I have been able to rear barely twenty-five larvæ, and Mr. Grigg not so many. No wonder we failed with them last season, when together with wych elm we gave them so many other sorts of food to choose from, for now, with nothing but the wych elm leaves in their bottle, I found they would not feed at all, but would continually crawl to the light, and entangle themselves together till they were starved: at last I shut them up with some twigs in a large tin box, making the cover quite secure by stuffing cotton wool all round, and left them to themselves for some days, and in this way I managed to rear the number above mentioned.

This year (1874) the eggs were laid on July 9th and 11th, the larvæ hatched on the 18th and following days, and now as I write (August 14th) all are in their last skin, and several nearly full fed.

Last year (1873) I had the eggs during the last week of July and the first week of August, the larvæ hatching from July 30th onwards, but living only a day or two: the larvæ, nearly full fed, were captured during the last week in September, and the survivors among them changed to pupæ in a few days.

From the manner in which the moth deposits her eggs in any crevice in the chip box, I imagine that in freedom she would arrange them in small batches along the ribs on the under-side of the leaves, which in the wych elm are very prominent, and I noticed that the larvæ prefer to remain on the under-side of the leaves throughout their existence, carefully spinning a thread wherever they move; in feeding, at first they eat only the under-surface of the leaf, but by the time they are a quarter of an inch long, they eat holes quite through the leaves, generally avoiding the ribs, at last reducing them almost to skeletons.

The egg is small, somewhat brick-shaped, being long and flattened, but one end is squarer and thicker than the other; the shell glistening, and covered with a

diamond pattern of *sunk* lines, each diamond having a central sunken dot ;* the colour at first pale, afterwards rich deep yellow, with the edges still deeper, and a red tinge near the bigger end ; at last becoming again quite pale, but with a dark spot.

The young larva escapes by eating out one end of the egg ; in colour it is whitish, with a purplish tinge in the front segments from the internal organs showing through ; as it grows it becomes quite shining white ; after the first moult it is glassy looking and translucent, with an internal green stripe through the body, probably caused by the presence of food ; when about three-eighths of an inch long it is more opaque, with the back whitish-green, a broad dark green sub-dorsal stripe, the head greenish-white, all the rest pale green ; the bristles conspicuous.

Soon after attaining the length of three-eighths of an inch, it passes its last moult, and, after that, grows rapidly ; the markings are at first paler in the lighter portions, and darker in the dark portions, than they become afterwards.

The full-fed larva is about three-quarters of an inch long, slender, but cylindrical and plump, of almost uniform size throughout, except that the head is narrower than the second segment, and the last three segments taper off both in width and in thickness ; the skin soft and rather glossy, wrinkled at the divisions, puckered along the sides, and set with a few hairs.

The general colour on the back and sides is pale greenish-yellow, the belly slightly greener ; the crown of each lobe of the head is marked with a streak of crimson-brown ; the collar is shining ; on segments 2—4 is a long oval dorsal patch of pinkish or crimson-brown, widest on 3, and ending in a blunt point at the division between 4 and 5 ; through this runs a central thread of yellow, bordered with an edging of brown, darker than the patch, which has also a darker line running along just inside its outer curved edged ; about the middle of 6, commences a pair of lateral blotches, which run through 7 and 8, of either rose-pink or crimson-brown, having a streak of darker brown just in the place of the sub-dorsal line ; these blotches have waved edges, which nearly meet at the segmental divisions both above and below ; through 5—11 inclusive, there is no dorsal line whatever, but on 12 and beginning of 13, in the place of the dorsal line, is a broad stripe of rose-pink, bearing at each end a dark spot of crimson-brown : the spiracles roundish, but very hard to be seen, being greenish-yellow on the ground colour, and brown on the coloured blotches ; so too with the usual warts, on the ground they are scarcely to be seen, but on the blotches they become prominent, shining, and dark brown.

The above description applies to all the larvæ I have reared this season, for there is scarcely any variation amongst them, but among the captured larvæ last year there was a great deal ; this was shown not only in the depth of colour of the blotches, but also in their size, and by their absence ; one variety was greenish-yellow all over with no markings whatever ; another had the blotch on 2, 3, and 4, and a dot on 12, and nothing else ; another had a dark dorsal spot in the middle of 5 ; another had a similar spot on 6, almost connecting the lateral blotches ; the example had a dark spot on the side of the anal legs.

The larva, last year, retired into the earth furnished them for pupation, and there made weak, roundish, oval cocoons, nearly half an inch long, and formed of peaty fibres and earth, spun together with a slight lining of silk.

* The egg of *A. candida* has also this character of being embossed as it were by a pattern of sunk lines.

The pupa is about one-third of an inch long, plump in character, the abdomen tapering rather suddenly to a point, which ends in two slightly diverging curled-topped bristles, these last being attached to the threads that line the cocoon; its colour is a light reddish-brown; the tumid margins of the wing-covers yellowish-ochreous; the centres of the wings, and the antenna-cases, olive; the tip of the abdomen black.—ID.: *August 14th, 1874.*

Capture of Noctua sobrina.—I have had the good fortune to discover a new locality for *Noctua sobrina*, in a heathy place some distance south of Loch Rannoch, Perthshire. Last spring I accidentally found an injured larva of what was (from the description given in Mr. Stainton's Manual) so suggestive of *N. sobrina*, that I determined to work for the perfect insect when due. I was rewarded by taking several specimens, and also by obtaining eggs which I duly sent to Messrs. Buckler and Hellins for future notes. I find this species exceedingly local in its habitat.—JOHN T. CARRINGTON, Poole Road, Egremont, Birkenhead: *August 1st, 1874.*

Capture of Pachnobia alpina.—I had the pleasure of capturing a specimen of this fine and rare species this summer in Perthshire. It was taken in the Breadalbane division (as divided by Dr. White in his *Fauna Perthensis*), close to the summit of a mountain of upwards of 3000 feet in height.

It may interest some of your readers to know that this was the only result of fourteen whole nights and several days spent at that height. I sugared each night, but it produced nothing but an occasional *Noctua festiva*. The nights spent at this altitude were alternate, the other evenings were occupied by sugaring in the valley where I stayed; these latter sugarings produced many moths, so that the paucity of moths at sugar on the mountains could not be the result of a bad season. Considering the result, and the extreme discomfort of mountain tops at night, for I was many times enveloped in thick clouds for hours together, I do not think it worth while to work again for this cloud-loving species.

I believe there are only four previous records of this species being taken in Great Britain, viz.: the two named in the "Manual;" a third, by Mr. Eedle, on Schiehallion, in 1870; and one bred from a pupa found while hunting for *Coleoptera* in Braemar in 1873 (*vide ante*, x, 88), by Mr. Allin. These may be called accidental captures, so I feel a little more pleasure in having gone for and obtained this species.—ID.

On the larva of Noctua subrosea.—From M. Berg's description (translated in your last number, p. 67) of the larva of the Russian *Noctua* considered to be a variety of *subrosea* by Dr. Staudinger, I am inclined to think it will prove to be a distinct species.

I sent living larvæ of our *subrosea* to my friend M. Guénée, who thus describes them:—"The caterpillar is very pretty: it is of a greyish-flesh colour, striated and "marbled with brown, with the vascular and sub-dorsal lines somewhat large, clearly "defined, continuous, straight, and of a citron-yellow speckled with brown; the latter "speckled on the lower part with reddish-yellow. The stigmatal line is very large, "of a pale sulphur-yellow, and surmounts a deep brown ventral band; stigmata "brown; head concolorous, with two dark marks."

The larva of our species very much resembles the paler varieties of the larva of *Hadena pisi*.

The specimens of the Russian moth which were shown to me by Baron von Nolcken, were very much smaller than our *subrosea*, and the superior wings were strongly tinged with blue.

Dr. Staudinger and M. Berg refer to Herrich-Schäffer's figures as representing the Russian form, but this is certainly an error; they represent our *subrosea*, and I have little doubt that they were taken from specimens which originally belonged to me, as I gave a number of specimens to the late M. Becker in 1848, which were captured by Mr. English at Yaxley; and a year or two afterwards I sent a series of bred specimens to Herrich-Schäffer. I do not think the Russian form was discovered when his figures were published.—HENRY DOUBLEDAY, Epping: August 13th, 1874.

Note on Lobesia reliquana.—My friend, Mr. C. G. Barrett, has followed Professor Zeller and Dr. Wocke in the error into which they have fallen, in referring the *reliquana* of Hübner to the *Botrana* of the Vienna catalogue.

Hübner figured our insect under the name of *permixtana* (Tort. No. 75), supposing it to be the species given under this name in the Vienna catalogue. He appears to have afterwards changed his opinion, as he figured another *Tortrix* under the name of *permixtana* (Tort. No. 187), and in his catalogue gave our species the name of *reliquana*. The two species stand thus:—

“No. 3637.—*Hemimene permixtana*, Schiff., Verz., Tort., D. 19. Hüb., Tort., 187.”

“No. 3674.—*Asthenia reliquana*.

„ *permixtana*, Hüb., Tort., 75.”

It is clear from the above extract that Hübner applied the name of *reliquana* to our insect, and not to *Botrana*, W.V.—ID.

Domestic Entomology: a word in season.—Cockroaches are doubtless necessary in the scheme of creation of this best of all possible worlds, and even from a merely human point of view, may in some sort be deemed useful. They are said to be a certain remedy for the plague of bed-bugs, it having been averred by an eye-witness that the latter are the prey of the former, but most simple-minded persons would deem the remedy to be almost as bad as the pest. Apart from this consideration, seeing that *Blattæ* will and do exist in houses which are devoid of *Acanthiæ*, and that they are then an unmitigated nuisance that rapidly increases, it is, I think, beyond controversy, desirable that it should be speedily diminished. The most tender-hearted maiden who, over her shrimps or lobsters without any feeling for their sufferings, inveighs against the cruelty of fly and beetle-butchers, will scarcely give the least sign of sympathy for slaughtered cockroaches, nor, however sensational the recital, could the reporter say

“The wandering fair one turned to chide.”

And if the proposition of “Death to the *Blattæ*” were put to the vote at a meeting of metropolitan householders (in the parliamentary sense, for it may be disputed if in any other persons can be householders who share their tenements with such vagabonds), can it be doubted that the chairman would announce “The Ayes have it.”

Without venturing to offer any opinion on the merits of the various means

advertised for getting rid of cockroaches—the efficacy of one of which, however, is rendered doubtful by the announcement of its powers being headed by a fancy portrait of a stag-beetle as one of the noxious creatures—it may be of service to make known the following personal experience with a method that is not “Registered,” nor “Patented,” nor “Breveté s.g.d.g.”

Several years since I read an extract from the Boston “Journal of Chemistry” that cockroaches had an intense aversion to borax, and any place they frequented would be cleared of them if the powder were placed in their haunts. Circumstances favoured an experiment, and in the course of two or three weeks I found that the prescription, used daily, had rendered my kitchen free from the hordes of these hexapod banditti that had long made their nocturnal raids there, their carcasses every morning showing the havoc that had been made in their ranks. It has been said that

“We murder to dissect,”

but I did not make any post-mortem examination of the “Subjects” to ascertain how the borax had effected them;—I was satisfied they were dead. I may avoid the felonious imputation altogether by saying, as indeed has been said already, that in such a case “Killing is no murder.”

Recently, I saw an extract from the American “Cultivator” to the following effect:—

“No insect which crawls can live under the application of hot alum-water. It will destroy red and black ants, cockroaches, spiders, bugs, and all the other crawling pests which infest our houses. Take two pounds of alum and put it in three or four quarts of boiling water; let it stand on the fire until the alum is melted, then apply it, while nearly boiling hot, with a brush to every joint and crevice in your closets, bedsteads, pantry-shelves, and the like. Cockroaches will flee the paint which has been washed in cool alum-water. Powdered alum will keep bugs at a respectable distance, and travellers should always carry a bundle of it in their hand-bags to scatter over and under their pillows in hotels, &c. While staying at an hotel once, with a party, most of whom complained sadly of the nightly attacks of these disgusting insects, I was able to keep them entirely at bay by its use, and I distributed the contents of my bundle among the party, to their great relief.”

It should be pleasing to housekeepers, as well as to travellers, to know of the above cheap remedy for the house pests mentioned. But is it real? Possibly some housekeepers may favour the world with the result of their experiments with the alum-cure in the matter of “cockroaches, ants, spiders, and all other crawling pests”—except bugs. These latter are things that no one will confess to having in his dwelling;—hotel and lodging-house keepers are virtuously indignant at the bare suspicion of such creatures, and will declare that the vermin, if found on their premises, must have been brought by the lodgers themselves. Once, indeed, I am told by a friend, that at an hotel in Paris, the *chambrière*, on being shown a full-grown *Acanthia* on the bed in the month of April, merely said, with great *naïveté*, “I never saw one so early;” but this was an exceptional admission. Yet some traveller, I hope, who has hitherto found, in more senses than one,

“His warmest welcome at an inn,”

will have no compunction in telling us if he has tried the effect of alum-powder

placed in his bed (possibly not used only "on and under his pillow") in getting him a safe deliverance from "the terror that walketh by night;"—and we will excuse the reticence of the housekeepers.—J. W. DOUGLAS, Lee: July 27th, 1874.

Capture of Aphelocheirus aestivalis in Norfolk.—During the last winter I showed to my friend Dr. J. A. Power, a water-bug, which had been given to me, mounted whole, as an object for the microscope; he pronounced it to be *Aphelocheirus aestivalis*, a great rarity. I learnt where it was taken, and have secured a few. The species is not scarce among weeds in a running stream at Castessey, about four miles from Norwich. In the middle of June, it was mostly in the larval form, six to one of the perfect insect; at the end of the month, the perfect insect was much more abundant; and on the 20th inst., there was not more than one larval form in eight taken. I did not see any swimming about, nor did I get one winged specimen. I have also heard of a habitat in another stream at Earlham.—JAMES LAUNDY BROWN, The Grove, Chapelfield, Norwich: July 3rd, 1874.

Note on some Odonata (Dragon-flies) from the Sandwich Islands, &c.—Mr. G. F. Matthew, F.L.S., late of H. M. S. "Repulse," now in England, collected a considerable number of Dragon-flies at various ports on the west coast of North and South America; including some from the Sandwich Islands, in the month of June, 1873. From the latter locality are four species:—

1. *Anax Junius*, Drury, a common species in North America, and already recorded from the Sandwich and other Polynesian Islands.
2. The nearly cosmopolitan *Pantala flavescens*, F.
3. A *Tramea* that I cannot separate from *T. lacerata*, Hagen; originally recorded from Texas, Maryland, and Mexico. I have it from Texas, and from the North of California, collected there by Lord Walsingham (a very northern locality).
4. A small Agrionide not yet determined.

Of *A. Junius*, *P. flavescens*, and *T. lacerata*, Mr. Mathew says they are abundant in the Islands, and "prey on the produce of what the Hawaiians call the 'army worm.' It is a species of *Hadena*, and occurs in countless multitudes. These large "Dragon-flies used (or seemed) to follow me in numbers as I walked through the "grass, darting off to the right or left of me in full chase when I disturbed a moth. "They were numerous on board our ship, although we were anchored more than two "miles from the shore.

At Payta, Peru, Mr. Mathew caught several of *Pantala hymenæa*, Hagen, a species that I think had not been recorded from south of Mexico. He says of it:—"This fine species occurred along the sea-coast. I cannot imagine where the larvæ "fed, as there was no fresh water within many miles of Payta, and rain is almost "unknown there. Just above high-water mark in some places, there were large "patches of a species of ice-plant (*Mesembryanthemum*, sp. ?), and these Dragon- "flies were always to be found hawking above them." The species is no doubt migratory like its congener *P. flavescens*, and those that Mr. Mathew saw were *en voyage*.

From Vancouver's Island Mr. Mathew brought our familiar *Libellula quadrimaculata*, which occurs over all the boreal parts of the Northern Hemisphere, and is well known to be migratory. —R. McLACHLAN, Lewisham: 4th July, 1874.

Review.

ON THE TRANSFORMATIONS OF THE COMMON HOUSE FLY, with notes on allied forms; by A. S. PACKARD, Jun., M.D. (from the Proceedings of the Boston Society of Natural History, Vol. xvi, pp. 136—150, 1 plate). Of all insect-pests of the human race, there is—strange though it be—scarcely one of which the earlier stages are less popularly known than those of the House Fly. To entomologists who have specially attended to the subject, it was certain that the eggs were laid in dung, and that the metamorphoses took place therein. Dr. Packard, in this interesting memoir, traces out all its history from eggs laid in fresh horse-droppings; and summarises it as follows:—"The eggs are about one hundred and twenty in number, and in twenty-four hours the larvæ are hatched. There are three stages of the larval state, and consequently two moults. The first stage lasts about one day or twenty-four hours. The second stage lasts about one day. The third stage lasts three or four days. The pupal state lasts from five to seven days. The period from the time of hatching to the exclusion of the imago lasts from ten to fourteen days in the month of August." Just as there are at least three species commonly confounded under the term "Blow Fly,"—of which the true *Musca* (or *Calliphora*) *vomitória* is possibly the least abundant—so there are several species ordinarily known as the "House Fly," and Dr. Packard takes particular care to point out in what way that ferocious little animal (*Stomoxys calcitrans*), which takes a mean advantage of humanity by driving its proboscis through our stockings when taking our ease in slippers, differs from the comparatively harmless domestic Dipteron. He might have gone further, and instructed his uninitiated readers that the merry creatures (*Homalomyia cunicularia*) which perform an aerial ballet over one's head when lying half-asleep and half-awake in the early morning, are not "House Flies." Although the parts relating to embryology, &c., will probably not much interest the non-entomological public, Dr. Packard will do well to secure for his memoir more readers that it will have in the pages of the proceedings of a scientific society.

ENTOMOLOGICAL SOCIETY OF LONDON: *July 6th, 1874.*—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Mr. S. Stevens exhibited examples of *Dianthæcia albimacula*, bred at Portsea by Mr. Moncreaff; also *Cathormiocerus maritimus*, Rye, and *Tychius hæmatocephalus* taken by the same gentleman; and *Agrotera nemoralis* from Abbot's Wood, Sussex, taken by himself.

Mr. Bond exhibited minute parasites from a bat, probably identical with *Argas pipistrellæ*; also *Acari* found on a fly, and *Acarus*-galls on leaves of damson: the galls being very numerous, but the fruit-bearing powers of the tree not being thereby affected. (These galls are probably the same as those found on sloe; and, according to Kaltenbach, are the work of *Volvulifex pruni*).

Mr. W. C. Boyd exhibited two examples of *Thecla rubi* from Sussex, having a pale spot in each fore-wing. He remarked that he had only seen two individuals of the species in the locality in which they were captured, and both were of this peculiar variety.

Mr. Wormald exhibited a collection of Butterflies from Japan, captured by Mr. H. Pryer.

Mr. W. Cole exhibited leaves of ash affected by small dipterous larvæ (probably *Cecidomyia*), which caused the two edges of the leaflet to turn upwards and meet above, thus assuming a pod-like form. They were from West Wickham.

Mr. Champion exhibited *Amara alpina*, and other rare British *Coleoptera*, recently captured by him at Aviemore, Inverness-shire.

Mr. Grut exhibited larvæ, pupæ, and imago of a dipterous insect found in his house, attacking an old piece of Turkey carpet. The larvæ were long, slender, and somewhat like a wire-worm. The pupæ were enclosed in a kind of cocoon formed of particles of the wool of the carpet. Prof. Westwood thought the fly was probably a species of *Scenopinus*.

Mr. F. Smith exhibited sand-cocoons found in a salt marsh near Weymouth. They were the work of a dipterous larva, and were found lying on the top of wet salt sand. Prof. Westwood said they were probably formed by *Macherium maritimum*, one of the *Dolichopodidæ*.

Mr. Butler exhibited a very rare book from the library of Mr. Janson, viz., Lee's "Coloured specimens to illustrate the Natural History of Butterflies," published in London, in 1806; the issue having been limited to a very limited number of copies. He gave a detailed account of the synonymy, &c., of the species figured.

Prof. Westwood exhibited examples of *Haltica (Batophila) ærata*, which he had found to be very injurious to young leaves of garden-roses; also portions of a ripe walnut attacked by a larva. Mr. McLachlan said that this was probably that of the acorn-moth (*Carpocapsa splendana*), and Mr. Moore said that he had bred that species from a walnut. He further exhibited and remarked on the yucca-moth (*Pronuba yuccasella*, Riley) bred by him from cocoons sent by Mr. Riley. The existence of this insect appeared to be absolutely necessary for the fertilisation of the flowers of the Yucca, the pollen being collected on the peculiarly formed palpi, and transferred to the stigmatic surface as the insect passed from flower to flower, as detailed by Mr. Riley in several of his Reports on the Insects of Missouri. Prof. Westwood concluded by exhibiting a number of dark coloured honey-bees, found near Dublin, attacking a straw hive of ordinary bees. They were remarkably free from pubescence, and looking ragged and worn. He considered they were only a degenerated form of the hive-bee, and were probably identical with what Huber calls "black bees," the existence of which had been scarcely noticed since his time.

The Rev. H. S. Gorham read descriptions of new species of *Endomychidæ*, supplementary to his "Endomyceici Recitati." Also remarks on the genus *Helota*, belonging to the *Nitidulidæ*, with description of a new species from Japan.

Dr. Sharp communicated a supplementary paper on new species of various groups of *Coleoptera* from Japan.

Prof. Westwood read descriptions of new species of *Cetoniidæ*, principally from the collection of Mr. Higgins, and accompanied by drawings.

Part iii of the Transactions for 1874 was on the table.

The President announced that the Library of the Society would, at present, remain at Bedford Row, pending the result of negotiations in progress for its removal to more suitable quarters.

NOTES ON *CICINDELIDÆ* AND *CARABIDÆ*, AND DESCRIPTIONS
OF NEW SPECIES (No. 18).

BY H. W. BATES, F.L.S., &c.

Sub-family SIAGONINÆ.

COSCINIA PICTULA, *sp. n.*

C. fuscigeræ (Chaud.) *affinis*. *Parva, setosa, nitida, nigra, punctata; elytris fascia basali maculaque suturali-apicali sanguineis; palpis, labro pedibusque fusco-fulvis; antennis castaneis.* *Long. 2 lin.*

Of the flattened form of *C. Semeleleri*, but smaller, and the elytra distinctly punctate-striate, with a row of punctures down each interstice. In colour and size it approaches *C. fuscigera*, but the red colouring of the elytra consists of a broadish basal belt and an oval spot over the suture near the apex; a red sutural border sometimes connects the two, and the apical spot is also liable to be enlarged so as to extend to the margins. The head and thorax are covered with large separate punctures, and the dorsal line of the latter is very strongly impressed.

Mesopotamia; many examples.

APOTOMUS XANTHOTELUS, *sp. n.*

A. rufo brevior et convexior; haud setosus; atro-fuscus, sub-nitidus; antennarum articulis duobus basalibus, pedibusque rufo-castaneis, illarum articulis quatuor apicalibus flavis; palpis fulvo-testaceis.

Long. 1½ lin.

Dull blackish-brown; legs clear chestnut-red; antennæ with the two basal joints reddish and the four apical ones yellow. The elytra are more convex than in *A. rufus*, and rather more strongly punctate-striated, with narrower interstices. The body appears destitute of erect hairs.

Celebes (Wallace); two examples, in one of which the thorax is pitchy-red.

Sub-family SCARITINÆ.

CARENUM PORPHYREUM, *sp. n.*

C. smaragdulo (Westw.) *affine*. *Oblongo-ovatum, convexum; nigrum, nitidum, thorace latissimo, late viridi-limbato; elytris læte violaceis, viridi-marginatis, ovatis, lævibus, postice unipunctatis; tibiis anticis tridentatis.* *Long. 10 lin.*

Of the same form as *C. smaragdulum*. Anterior tibiæ with a well-developed third tooth, surmounted by two other denticulations. The

head is broad; the frontal furrows short, commencing on a level with the middle of the eyes, and slightly diverging posteriorly; the eyes less prominent than in *C. Odewahnii*. The antennæ are rather slender, the apical joints gradually tapering. The thorax is very broad, as in *C. Odewahnii*; the hind margin is not lobed, and distinctly trisinate; it has a very broad light green border, the inner edges of which are violet. The elytra are elongate-oval, not narrowed to the base, nor depressed near the suture; the humeral angles have an elevated tooth; there is a row of four ocellated punctures on each side of the base, and one discoidal puncture behind, but no trace of sculpture on the surface, which is of a rich violet, shading into green in some lights towards the base and apex; the margins, including the broad epipleuræ, being golden-green. The sternal segments and sides of the abdomen are also green. The labial palpi have their terminal joint only slightly dilated.

West Australia.

CARENUM BREVIFORME, sp. n.

Breviter oblongo-oratum, nigrum; thorace et elytris lateviridi-limbatis, his disco violaceis, striato-punctatis, postice unipunctatis; capito magno, sulcis frontalibus brevibus parallelis; tibiis anticis tridentatis.

Long. 7½ lin.

The terminal joint of the antennæ is short and ovate. The thorax is twice as broad as long; lunate, with prominent anterior angles, and a very short and rather narrow lobe in the middle of the base. The elytra are extremely short, ovate, convex; depressed at the suture, and with rows of shallow but large punctures, besides the single large discoidal posterior puncture; the borders are broadly emerald-green, and the disc violaceous near the suture and green borders. The underside is black. The anterior tibiæ have three distinct teeth and two denticulations.

West Australia.

CARENUM SUBPLANATUM, sp. n.

Cylindrico-oblongum, nigrum, nitidum; elytris oblongo-oratis, convexis, dorso planatis, postice bipunctatis, nigro-violaceis; thorace paulo transverso; capite post oculos transversim impresso, sulcis frontalibus paulo obliquis; labro antice recto; tibiis anticis bidentatis.

Long. 7½ lin.

A species approaching in some of its characters *Eutoma* and *Carenidium*, but having the moderately dilated labial palpi and narrowed

apical antennal joint of *Carenum*. In form it most nearly resembles *C. Bonellii*, but it is rather narrower, and the elytra are more rounded at the shoulders and distinctly flattened for a considerable breadth on each side of the suture, the limits of the flattening being distinctly marked. The head is similar in form, but presents several striking points of difference; the transverse depression behind the eyes is deep and continuous right across; the eyes are much less prominent; the lobes of the clypeus in front of the eyes are not distinctly grooved, and lastly, the labrum is straight, or even somewhat emarginate, in front, with a row of distinct large punctures. The maxillary palpi have their terminal joint nearly linear. The elytra have no trace of sculpture beyond the posterior fovea and a cluster of ocellated punctures at the base, lying in irregular depressions, with the usual marginal punctures. The margins are thickened near the apex.

Nicol Bay; West Australia.

CARENUM PLANIPENNE, *sp. n.*

Elongatum, parallelum, depressum, elytrorum dorso late fortiter planato; nigrum, nitidum, thoracis marginibus angustis elytrisque omnino smaragdinis; capite lato, rotundato; sulcis frontalibus longis, fortiter curvatis; oculis haud prominulis; thorace paulo transverso, basi lobato; elytris humeris elevato-dentatis, postice bipunctatis; tibiis anticis bidentatis.

Long. 10 lin.

The head resembles much that of *Carenidium*, to which genus the species would belong, were it not that the labrum is not emarginated, but trisinate, and approaching that of the typical *Carena*. The labial palpi, too, are not so strongly dilated as in *Carenidium*; but the maxillaries are more dilated than in *Carenum*. The species, therefore, is a connecting link between the two genera. The body is elongate, parallel-sided and depressed, with the elytra flattened for a broad space on each side of the suture; the colour is olive-black, with the margins of the thorax and the whole elytra clear green, the colour being duller along the centre of the latter. The antennæ are slender, with the apical joint tapering, and the sides of the joints only densely pubescent. The frontal furrows are curved, and so strongly impressed that the lateral intervals resemble orbits, and the eyes are not prominent. The thorax is a little broader than long, parallel-sided until near the base, where it is sinuate-angustate to the distinct basal lobe. The elytra are retuse at the base, with rather advanced and dentate shoulders, the lateral margins are thickened as in *Eutoma*; the surface

is smooth, and there is a row of three or four ocellated punctures at the base. The metasternal episterna are very short. The ventral segments have each two punctures.

Nicol Bay ; West Australia.

NEOCARENUM CYLINDRIPENNE, *sp. n.*

N. elongato angustior ; nigrum, nitidum ; elytris quam thorace multo angustioribus, omnino transversim rugosulis, punctis ocellatis sub-marginalibus seriatim ordinatis.

Long. 11 lin.

Apparently closely allied to *N. rugosulum*, W. McLeay, but differs in the frontal furrows being remarkably deep, *N. rugosulum* having "capite leviter bisulcato;" and also in the absence of all trace of elytral striæ. The head is similar to that of *N. elongatum*, the frontal furrows being deep, strongly flexuous, widely divergent behind, and connected at their ends (on a level with the posterior margin of the eyes) by a transverse furrow. The eyes are enclosed behind by a thin orbit, which does not project beyond them. The surface of the head is smooth and shining. The thorax does not differ from that of *N. elongatum*. The elytra are much narrower than the thorax, nearly cylindrical, very slightly narrowed to the base, with the humeral angles scarcely advanced, and the suture not depressed; the whole surface is covered with short and very irregular shallow wrinkles, coarser near the sides, where they obscure the sub-marginal row of large ocellated punctures. The anterior tibiæ are bidentate, the middle tibiæ unispinose; the suture between the second and third ventral segments quite obliterated in the middle. The antennæ are glabrous, with the fifth to eleventh joints coarsely punctured and pubescent on their edges; the terminal joint tapers to the tip.

West Australia.

NEOCARENUM RETUSUM, *sp. n.*

Elongatum, latior, minus convexum, nigrum, subtilissime coriaceum, vix nitidum ; elytris basi valde retusis, humeris sub-fulcatis, punctis sub-marginalibus nullis ; tibiis anticis extus tridentatis, subtus valde dentatis, intermediis bispinosis.

Long. 11½ lin.

The head in this remarkable species resembles that of *N. elongatum*, with the exceptions that the lateral lobes project much more, and are more angular in front of the eyes, and that the posterior orbits project beyond the eyes; the frontal furrows are similar, but the transverse furrow behind continues laterally to the hind margin of the eye. The antennæ are still more glabrous, and the joints 5—11 have strong punctulated grooves on their edges. The thorax is rather shorter and broader, with rectangular anterior angles, and neither an-

terior nor basal foveæ. The elytra are as wide as the thorax, very obtusely rounded and abruptly declivous at the tip, depressed on the back and broadly retuse-concave at the base, with projecting shoulders, the tooth of which is somewhat curved laterally as well as upwards; they are uniformly and minute coriaceous, without the usual large punctures. The anterior tibiæ have three teeth, and the usual denticulations on the carina beneath are enlarged into two broad conspicuous teeth. The middle tibiæ have two long and strong spines. The metathoracic episterna are very remarkably small and rounded. The maxillary palpi are very slightly dilated (labials wanting).

Nicol Bay.

EUTOMA CAVIPENNE, sp. n.

Gracile, angustum, nitidum; capite valde exserto, ovato, oculis nullo modo prominulis; thorace nigro, late viridi-marginato; elytris dorso valde depressis, lævissimis, impunctatis, violaceis, marginibus (basi et apice dilatatis) viridibus.

Long. 7 lin.

The head is very different from that of *E. tinctilatum* and *splendidum*; the eyes being flat or even sunk, so that the form is ovate, broadest before the eyes and gradually narrowed behind to the thorax; the space between the exterior teeth of the epistoma is narrow and deeply concave; the frontal furrows are narrow, flexuous, scarcely divergent, and do not reach the level of the hind margin of the eyes; the surface is glossy, smooth and black, with the sides of the neck violet or blue. The thorax is rather smaller and narrower than the head; black, with broad brilliant green border. The elytra are of the width of the thorax, and about as long as head and thorax taken together; they have a small triangular emargination at the base of the suture, and a broad concave depression down the middle; there is no trace of striæ or punctures; the usual ocellated points on each side of the base are one, or (sometimes) two, very large, and the marginal punctures are also large and widely separated: the colour of the whole disc is rich violet, with brilliant green basal, apical and lateral borders, but sometimes the green borders are much wider. The under-surface and legs are shining black.

West Australia.

CARENIDIUM SAPPHIRINUM, sp. n.

C. gagatino brevior, magis ovatum; convexum, nitidum, læte cæruleo-violaceum, marginibus viridibus; sublus viridiæneum; capite alutaceo; thorace transverso, rotundato, basi lobato; elytris ovatis, subtilissime punctulato-striatis.

Long. 12 lin.

Head very similar to that of *C. gaganinum*, frontal sulci very deep, widely divergent behind and extending much beyond the eyes, the latter prominent but encased behind in wide orbits; labrum deeply emarginated in a curve. Thorax much shorter than in *C. gaganinum*, and more regularly rounded; the middle of the base forms a distinct, short, truncated lobe. The elytra are ovate, with shoulders entirely effaced, convex on their surface, with lateral margins not at all thickened. The anterior tibiæ have two long teeth; the middle tibiæ one short spine.

Nicol Bay; West Australia.

TERATIDIUM, *g. n.*

Corpus maxime elongatum. Palpi maxillares et labiales apice dilatissimi; caput rotundatum; sulci frontales vix impressi, brevissimi, postice convergentes. Tibiæ anticæ unidentatæ; intermediæ extus simplices. Elytra basi utrinque plicata, marginibus lateralibus incrassatis; disco impunctato. Metasternum brevissimum.

The extraordinary insect for which this new genus is necessary, agrees with *Monocentrum* only in the absence of the usual tooth or teeth of the anterior tibiæ above the apical one; but the excessive dilatation of the terminal joint of the maxillary (as well as of the labial) palpi and the very short faint frontal grooves, form very distinct and peculiar characters. The head is broader than the thorax, rounded and obtuse in front; the four teeth of the clypeus are of equal size; the labrum bisinuate, prominent in the middle. The antennæ are naked, with a few large punctures on the margins of the joints. The eyes are large and prominent, encased behind in broad orbits. The thorax is much longer than broad, oblong, but narrowed behind and a little sinuate-angustate near the base. The elytra are cylindrical, but appear broadened behind, owing to the excessive thickness and width of the marginal rims, which, at the sutural apex, are overlapped by a lobular projection of each elytron; they are slightly narrowed to the base, which has on each side a transverse wheel, *posterior* to which is a depression containing eight or nine ocellated punctures, but the declivous base itself has no such punctures; the shoulders have a very projecting tooth, and the base at the suture is concave.

TERATIDIUM MACROS, *sp. n.*

Nigrum, sub-nitidum.

Long. 13½ lin.

To the above detailed generic description it may be added that

the marginal row of ocellated punctures is not on the extreme margin as in *Carenum*, nor moved towards the disc as in *Neocarenum*, but lies just above the marginal furrow. The ventral segments have no punctures, and the suture between the second and third is complete.

Nicol Bay.

OBS.—All the above new species of the *Carenum* group were obtained from the reserved collection of M. Du Boulay, in which they were nearly all represented by single specimens. From the same collection I obtained other species, allied to the common *C. marginatum* and *C. Bonellii*, but it is almost impossible to ascertain whether some of the numerous descriptions published by Mr. W. MacLeay and Count Castelnau do not apply to them.

Bartholomew Road, Kentish Town, N.W.:

July, 1874.

ON A NEW FAMILY OF EUROPEAN AQUATIC COLEOPTERA.

BY D. SHARP, M.B.

Some few weeks ago I received a letter from Dr. Leconte, of Philadelphia, in which he enclosed two specimens of a minute Coleopterous insect. These two specimens had been captured by the late Mr. G. R. Crotch in Southern California, and Dr. Leconte specially directed my attention to them as being of great interest, inasmuch as he considered them to be representatives of a new family of Clavicorn *Coleoptera*. When the specimens reached me, they had unfortunately entirely lost their heads and thoraces; nevertheless, the insect interested me even more than Dr. Leconte had anticipated; for I felt sure, from the fragments that had reached me, that not only was it the representative of a new family of *Coleoptera*, but that that family was an inhabitant of Europe as well as of North America. I accordingly wrote to Dr. Leconte, informing him of the accident that had occurred to his specimens, and of my suspicion that an allied insect was a native of Europe, and, on receipt of my letter, he was so kind as to forward me two other specimens of his *Hydroscapha natans*, as well as a proof slip of his description thereof. I think it well to preface my observations on this insect by giving verbatim Dr. Leconte's description of it.

“HYDROSCAPHA, n. g. (*Hydroscaphidae*), Leconte.

“Head moderately large, eyes lateral, coarsely granulated, somewhat transverse; antennæ scarcely longer than the head, inserted under the edge of the front, with seven distinct joints; 1st stouter, 2nd and 3rd each as long as the first, but narrower,

4th to 6th together shorter than 2nd and 3rd united, gradually wider, 7th about as long as the 2nd and 3rd united, elongate oval, scarcely wider than the 6th, with an indistinct transverse suture near the base, and another very near the tip, which is sub-acute.

"Labrum transverse, rounded in front concealing the mandibles. Maxillæ large at the base (lobes not examined), maxillary palpi less than half as long as the antennæ, 1st and 4th joints long, 2nd and 3rd united equal to either of the others, not dilated; mentum trapezoidal, rather large, broader than long, wider in front; ligula rather large, emarginate, palpi short, rather stout, 2nd and 3rd joints broader and shorter than the 1st.

"Prosternum very short, hardly visible, front coxæ transversely conical, contiguous, trochanters large, cavities narrowly closed behind; middle coxæ separated, small, mesosternum protuberant; metasternum large, side-pieces narrower and pointed behind, hind coxæ widely separated, laminate, the plate curved in arc of circle behind, and half as long as the 1st ventral.

"Abdomen conical, with six free segments, 1st large, longer than the four following united, which are equal in length, but rapidly narrower; 6th equal to the four preceding united, rather longer than wide, concave and emarginate behind, with two anal filaments equal in length to the segment itself.

"Legs short, front tibiæ somewhat thickened at tip; tarsi slender, rather shorter than tibiæ, apparently 4-jointed, 1st and 2nd joints short, 3rd equal to them united, 4th equal to the others united, claws rather long and slender.

"Body small, scaphiform, rounded in front, narrowed behind, convex, elongate, and shining. Head rather large; prothorax narrower in front, with deflexed angles, base truncate, not margined. Scutellum small. Elytra without striæ, slightly punctulate, broadly truncate at tip. Abdomen projecting somewhat behind the elytra, with three segments visible, conical, not margined at the sides.

"*H. NATANS*.—Oval, narrower behind, convex, black or brown, shining; head and prothorax nearly smooth, elytra sparsely and finely punctulate; antennæ and legs testaceous. Length, less than .5 mm., = .02 inch.*

"Found abundantly by Mr. Crotch at Los Angeles in the river. Mr. Crotch informs me that this very singular insect resembles in appearance some of the species of *Limnebius*. It greatly differs from that genus, as from all other *Hydrophilidæ*, by the laminate and widely separate hind coxæ, and by the peculiar abdomen. It seems to me another of the synthetic types gradually becoming known to us among the smaller and more obscure forms, connecting several different families of the Clavicorn series; in this instance, the *Hydrophilidæ*, *Scaphidiidæ*, and perhaps the *Trichopterygidæ*. In the accepted arrangement of *Coleoptera*, it must be considered as indicating a new family."—Leconte.

I have made a tolerably careful examination of the specimens of the above insect sent to me by its able describer. So far as I can follow his description, I am enabled to confirm it, with the exception of one or two points. I have convinced myself fully that the antennæ of the above described *H. natans* are eight-jointed, and the tarsi only three-jointed. Considering this latter point of importance, I have

* This is, of course, a misprint: the specimens sent by Dr. Leconte are about half a line in length, = .04 inch.—D. S.

separated the legs, and examined them both in fluid and Canada balsam. I would therefore propose to supplement Leconte's description with the following remarks :

Antennæ 8-jointed, 1st joint much stouter and distinctly longer than the following one, 2nd joint slender at the base, slightly longer than the 3rd, joints 3—7 differing very little from one another, each just a little shorter and scarcely broader than the predecessor, the sutures separating the joints broad (or, in other words, the base of each joint accurately adapted to the extremity of the preceding one, so that the outline of the antennæ is scarcely at all notched), the suture between the 7th and 8th joints probably not admitting of motion, 8th joint elongate, rather longer than the 2nd, 3rd, and 4th joints together.

Mesosternum widely separating the middle coxæ, and similar in form to the same part in *Megasternum boletophagum*.

Front and middle tibiæ armed externally with stout spines.

Tarsi 3-jointed, 1st joint rather shorter than 2nd, 3rd fully as long as 1st and 2nd together (this is drawn from the middle and hind tarsi ; the front tarsi are much shorter than the others).

Hind-body elongate and pointed, with the segments very retractile.

So much for the American insect.

Directly I looked at the specimens sent by Dr. Leconte, I saw they were closely allied to a minute species I captured some years ago in Spain, and I have accordingly compared the Spanish with the Californian examples, as well as with Dr. Leconte's description, and I find the two insects to be congeneric, and moreover, to be two closely allied species of the same genus. The following short characters will enable the European *Hydroscapha* to be identified.

HYDROSCAPHA CROCHI, *sp. n.* — Pitchy-testaceous, shining, sub-depressed, legs and antennæ yellowish ; head and thorax almost smooth, clytra very obscurely punctured, but the punctuation at their apical part distinct though very fine.

Length, less than half a line.

This insect is closely allied to *H. natans*, Lec., but is smaller, narrower, and very much more depressed.

It was captured by the late Mr. G. R. Crotch and myself in the pools of water by the side of the Manzanares in the suburbs of Madrid. During life, the hind-body is distended, but, except for this fact, the insect bears a singular resemblance to a minute species of *Limnebius*, in company with which it is found—the *Limnebius* being abundant, the *Hydroscapha* scarce. The *Limnebius* was sent by me to M. Pandellé some time ago, and was pronounced by him to be the *Limnebius evanescens* of Kiesenwetter. Kiesenwetter's description (Berl. Ent. Zeit., 1865, p. 375) of *L. evanescens* consists of only nine words, and they are not applicable to the *Limnebius* in question, though it is pos-

sible they might be intended to apply to the *Hydroscapha*. These facts suggest, therefore, the possibility that *Hydroscapha Crotchii* may have been hurriedly described as a *Limnebius*. Von Heyden (Berl. Ent. Zeit. 1870, Beiheft, p. 71) has supplemented Kiesenwetter's description of *L. evanescens* by a longer one; but it is still uncertain to me whether it is drawn from the *Hydroscapha* or a species of *Limnebius*. There is another species stated to be allied to *Limnebius evanescens*, viz., *Limnebius gyrimoides*, Aubé (Grenier, Cat. Mat., p. 127), from the South of France and Asia Minor, and it appears to me probable that the words in the description "extrémité du corps dépassant l'abdomen (*sic*) et terminés par deux petites raides en dessous," (*sic*) might likely enough, notwithstanding their absurdity, have been drawn from a *Hydroscapha*. Under these circumstances it is, at any rate, probable that the genus in the old world has a pretty wide distribution, and it is therefore premature to remark on the geographical distribution of the two species composing it.

I hope the Madrid entomologists will be able to give us information as to the habits of the *Hydroscapha Crotchii*, and particularly to inform us to what extent it is really aquatic in its habits.

As regards the affinities of the family, I shall not attempt to remark more than that I do not consider the points in which it approaches the *Hydrophilidæ* to be of great importance, and that it does not show any tendency to possess those characters which are most distinctive of and peculiar to the family *Hydrophilidæ*. On the other hand, I am inclined to think that its affinities with the *Trichopterygidæ* may be more important than Dr. Leconte has expressed: for the wings of *Hydroscapha* appear to me to show a decided approach to the peculiar structure of those organs in the *Trichopterygidæ*. I have forwarded a pair of *Hydroscapha Crotchii* and one specimen of *H. natans* to the Rev. A. Matthews, in hopes that his skill as a dissector of minute *Coleoptera* will enable him to give us a full description of the trophi; and I trust he will also inform us what his ideas are as to the affinities of the family with the *Trichopterygidæ*.

Thornhill, Dumfries:
September, 1874.

DESCRIPTIONS OF NEW SPECIES OF *LYCÆNIDÆ* FROM SOUTH AMERICA.

BY W. C. HEWITSON, F.L.S.

I am indebted for the insects described below to the generosity of Mr. Gervase Mathew, of the Royal Navy, who collected them during a cruise of H. M. S. "Repulse" in the Pacific.

THECLA SEDECIA.

Upper-side : ♂, anterior wing grey-brown, with a large dark brown discal spot; the space between it and the inner margin white. Posterior wing white, with two tails; the lobe rufous; two spots at the base of the tails and the outer margin black.

Under-side : white, with the basal half of both wings grey, bounded outwardly by a band of rufous-brown. Anterior wing with two sub-marginal series of pale brown spots. Posterior wing with one sub-marginal series of similar spots; the lobe black, the caudal spots as above.

Exp. $1\frac{3}{10}$ inch. Hab. Mexico.

This and the following species, though very distinct, have a general resemblance to *T. Daraba*.

THECLA CHONIDA.

Upper-side : ♂, grey-brown. Anterior wing with a large dark brown discal spot. Posterior wing with one tail; the anal half white, the lobe rufous; two black caudal spots, and the outer margin black.

Under-side : cinereous. Both wings crossed beyond the middle by a linear band of white, bordered inwardly by orange, and by a sub-marginal series of white spots. Posterior wing with the lobe and one caudal spot bordered above with orange.

Exp. $1\frac{1}{10}$ inch. Hab. Mexico.

THECLA CYRRIANA.

Upper-side : ♂, dull lilac-blue, the fringe rufous. Anterior wing with a small rufous discal spot. Posterior wing prolonged at the anal angle with one minute tail.

Under-side : rufous-brown, clouded with dark brown beyond the middle of the posterior wing. Anterior wing with a band in the cell, a band at the end of the cell bordered outwardly with white, and a spot near the apex all red-brown. Posterior wing crossed obliquely by three equidistant bands of the same colour.

Exp. $1\frac{4}{10}$ inch. Hab. Peru.

Nearly allied to *T. Palegon*.

THECLA CRITOLA.

Upper-side : ♂, ultramarine-blue. Anterior wing with a large black discal spot. Posterior wing with two tails.

Under-side: cinereous, undulated with brown to beyond the middle, bounded on the posterior wing by a series of pale orange spots, followed by a broad band of paler colour.

Exp. $\frac{1}{2}$ inch. Hab. Mexico.

Very unlike any other species.

THECLA MATHEWI.

Upper-side: ♂, anterior wing dark brown, with the inner margin cerulean-blue. Posterior wing with two tails, cerulean-blue, with the costal margin broadly brown.

Under-side: grey-brown, tinted with orange on the anterior wing. Both wings with a linear spot at the end of the cell; both crossed beyond the middle by a scarlet band bordered outwardly with white; the W of the posterior wing distinct; both wings with a sub-marginal brown band broken into spots, bordered with white on the posterior wing. Posterior wing with the lobe and caudal spot black, bordered above with scarlet.

Exp. 1 inch. Hab. Mexico.

I have named this species after its captor.

THECLA CYPHARA.

Upper-side: ♂, anterior wing dark brown with a rufous space at the anal angle. Posterior wing with two tails, rufous-orange, with the base and outer margin brown.

Under-side: ferruginous to beyond the middle, grey beyond it; both wings crossed by an orange band, bordered outwardly with white, both with a sub-marginal linear band of dark brown; the lobe and caudal spot black, bordered above with orange, below with white.

Exp. 1 inch. Hab. Panama.

Nearest to *T. Hugon*.

THECLA QUADRIMACULATA.

Upper-side: ♂, dark brown. Both wings with a large orange spot beyond the middle.

Under-side: cinereous. Both wings crossed by a band of dark brown spots, short, and near the apex of the anterior wing; central, and very irregular on the posterior wing; both wings with a sub-marginal series of dark brown spots. Anterior wing with the orange spot as above. Posterior wing with an indistinct yellow spot near the outer margin.

Exp.: ♂, $\frac{1}{10}$; ♀, $1\frac{2}{10}$ inch. Hab. Chili.

LYCÆNA LYRNESSA.

Upper-side: ♂, cerulean-blue, with the outer margin black, the fringe alternately black and white.

Under-side: pale grey. Anterior wing orange, crossed beyond the middle by a band of five black spots, the costal and outer margins grey. Posterior wing marked by a large triangular brown spot with its apex towards the apex of the wing; two black spots near the base of the costal margin, and two or three near the anal angle.

Exp. $\frac{1\frac{1}{2}}{20}$ inch. Hab. Chili.

Oatlands, Weybridge:
September, 1874.

NOTES ON BRITISH *TENTHREDINIDÆ*, WITH DESCRIPTION OF A
NEW SPECIES OF *NEMATUS*.

BY P. CAMERON, JUN.

NEMATUS ALNIVORUS (Hartig).

I have long possessed a *Nematus* that I never could identify, and considered it to be undescribed. On sending a type to Dr. Van Vollenhoven for his opinion thereon, he informed me that this is actually the case: it being, however, the species mentioned by Hartig (Stett. Zeits., i, p. 27) under the name of *Nematus alnivorus*. As apparently no proper account of it has ever been published, I have drawn up the following description of the ♀, the only sex known to me.

Antennæ a little shorter than the body, black; the third joint slightly longer than the fourth, the remaining joints becoming gradually shorter. Head entirely black, shining, and minutely punctured; the mandibles reddish. The thorax and abdomen are entirely shining black; the tegulæ greyish-white; the sheath of the saw hairy. Wings scarcely hyaline, having a faint smoky hue in the centre; the nervures fuscous; the costa and stigma fuscous with a testaceous tinge. The first sub-marginal nervure is either absent or very faint; the second recurrent nervure is received a little in front of the second sub-marginal one; and the second sub-marginal cell has a minute black dot at its lower end. The feet are reddish, with the apical joints of the four anterior, and almost the whole of the posterior tarsi, as well as the apices of the posterior tibiæ, and the calcaria, black. The spurs are bifid.

Long. $2\frac{3}{4}$ lines.

It has a considerable resemblance to *Hemichroa luridiventris*, Pall., but it wants the white line on the pronotum, the tibiæ and trochanters are not whitish, and the wings are clearer, while the difference in the neuuration of the wings at once distinguishes them. Herr Brischke has, in his "Abbildungen und Beschreibungen der Blattwespen-Larven," p. 12, doubtfully adopted the name of *alnivorus* for *H. luridiventris*.

N. alnivorus seems to be common in Scotland, appearing during May and June, in the vicinity of willows. Here it occurs at Cadder Wilderness and Possil Marsh, and I have likewise captured it in Strath Glass and Kintail.

CÆNONEURA DAHLBOMI, Thoms.

This season I have captured, in Cadder Wilderness, both sexes of *Cænoneura Dahlbomi*, and, as Herr Thomson does not mention the ♂, it may be useful to point out its distinctive characters. The antennæ are fuscous or fuscous-black, with the two basal joints white; the thorax is bright testaceous above with two broad black bands on each side of the cenchri, and encircling them; the sides are black, intermixed with brown, and across the breast there is a black band. The abdomen is coloured like the thorax, with the exception that the colour is paler, and the dorsal surface has a varying number of broad black transverse bands, which, in some examples, are nearly joined together. The wings have the nervures much paler than in the other sex; those at the base of the wings, as well as the costa and stigma, are testaceous. In none of my specimens can I observe a trace of the first sub-marginal nervure.

The ♀ also varies in colouration, some examples being quite black, whilst others have the thoracic sutures, and the abdomen above and beneath, more or less reddish. All that I have seen have the antennæ quite black; but Thomson mentions that the basal joints are often pale. One of my specimens is only half the usual size. Altogether, it seems to be a very variable insect, and this variability evidently extends to its time of appearing, for it is met with during June, July, and August.

TAXONUS GLABRATUS, Fallén.

How and where the eggs are deposited by the female saw-fly I have not been able to discover, although, from the fact of having found larvæ that could not have been more than a day or two out of the egg, feeding close to the mid-rib on the under-side of the leaves of the food-plant, *Polygonum bistorta*, I suspect that they are laid there. The usual habit of the larva is to remain on the under-side of the leaf, with its body curled up in a ring, having the anal segments slightly elevated. In this position it eats either circular holes in the centre of the leaf, or feeds along its edges. Two broods occur in the year; the first during June and July, the second from August to the beginning of October, and this last generation appears to be the larger. In my breeding pots, the larvæ either passed into the pupa state exposed in the soil, or more usually bored into the cork of the bottle in which they were confined. In a state of nature it is their habit to bore into the stems of plants: they never, I believe, spin cocoons.

The larva has the upper part of the head brownish-black, divided at the top by a paler stripe (but some want this pale band, whilst others have the back portion also pale); the lower part is whitish-green, with a somewhat semi-circular fuscous or pale brown mark in the centre of the face; the mouth is deep brown; the mandibles darker. The black eyes are situated in the pale portion. The feet are glassy-white; the thoracic feet have the claws and the joints next to these pale brown. Each of the body segments (except the fifth) is provided with a pair of feet—twenty-two in all. The upper part of the body to the spiracles is dark drab-green, assuming a brighter tint when the creature is filled with food; the remainder is white. The body is of the ordinary *Tenthredo* type; the skin closely wrinkled. The usual length of the larva is about nine lines.

The pupa is bright glassy-green, with the wings, antennæ, and feet white.

In addition to describing *glabratus* (under the name of *Allantus agilis*, Kl.), Stephens gives another species of *Taxonus*—*T. rufipes*, Ziegler—which Mr. Smith also, in his Nomenclature of British Hymenoptera, adopts as a distinct species; but, from the description, I should say that it is merely *glabratus* without the bronzy tint, for otherwise there seems to be no difference between the two.

136, West Graham Street, Glasgow:

11th September, 1874.

British oak-galls.—In the Entomologists' Annual for 1872, Mr. Albert Müller gave twenty-two species of *Cynipidæ* as dependent upon the oak in Britain, all of which I have found in this neighbourhood, with the exception of *Biorhiza aptera*, *Trigonaspis megaptera*, and *Dryophanta longiventris*. Two of these species, viz.: *B. aptera* and *D. longiventris*, I have no doubt occur here, but I have at present failed to find them; as to *B. aptera*, I have had but little chance, not having met with any uprooted trees; *A. radialis*, the other root-gall of the oak, I have found rather commonly at the roots of hedge-stubs.

Since the publication of Mr. Müller's paper, four other species of oak *Cynipidæ* have been added to the British fauna, viz.: *Andricus quadrilineatus*, Hart., *A. amenti*, Gir., and *Spathogaster vesicatrix*, Schl., by Mr. Traill (E. M. M., x, 39 and 85); and *Aphilothrix solitaria*, Fonsc. (= *C. ferruginea*, Hart.), by Mr. Cameron (E. M. M., x, 85); of these I have found *A. quadrilineatus* here abundantly this spring.

I now add descriptions of four other species found here, one of which—*A. globuli*—has been recorded as British by myself in the Entomologist (vii, 24).

Dryocosmus cerriphilus, Gir.—I found a cluster of old fallen galls of this species at the root of an oak—*Q. pedunculata*—here on the 22nd of June last. Dr. Mayr says: "this rare gall is only found on *Q. cerris*," and he, like myself, had only seen

old galls, but it is well described by Giraud in his paper on galls (Verh. Zool. Bot. Gesell., ix, 354): his description is too long to be translated. I hope to find fresh galls and breed the insect, but have failed to find any more traces of it at present.

Dr. Giraud erected the new genus *Dryocosmus* for this insect, on the shape of the scutellum in the imago, which he only obtained by cutting them out of the galls, only breeding *Synergi* and *Chalcididæ* in the natural way.

Aphilothrix globuli, Hart. (N. E., vii, 24).—This is one of the bud-galls of the oak of which, I believe, we have several species in Britain. It is green; and, being found in the late autumn and winter, is easily seen in the terminal shoots contrasting with the brown twigs and bud scales. Bald, almost round, terminating at the apex in a small point, seated rather deeply in the bud, but falling to the ground when mature. The gall-fly appears in February according to Hartig, but, although I found the galls commonly, and collected many specimens, I failed to breed the *Aphilothrix*; probably the inner gall withered through being collected too early. I found the galls in the beginning and middle of December in the Hadleigh Woods near here.

Aphilothrix albopunctata, Schl.—It was on the 3rd of July this year that I first noticed some rather large bud-galls on the one-year-old twigs of *Q. pedunculata* stubs; these were the galls of *A. albopunctata*. They do not appear to occur on trees, as I have searched for them there repeatedly without success; some of the galls were empty as early as that date, their inmates, most probably parasites, having emerged. The galls are mostly dark green in colour, but some two or three were of a bright cream colour, probably bleached, of a conical shape, with slightly raised striae from the apex to the base, and frosted with white spots in some specimens; they occur on the twigs, and are only surrounded just at the base by the small bud scales, so that they can easily be seen when looked for where they occur. I found two double specimens, otherwise the galls are monothalamous.

From fifteen galls I have bred thirty-two insects, all parasites, viz.: sixteen *Synergus facialis*, Hart. (seven ♂ and nine ♀), one *Pteromalus* sp.? six *Pteromalus* sp.? seven *Eurytoma squamea*, and two *Eupelmus urozonus*, Dlm. I have three galls which I hope contain the gall-maker, as Schlechtendal gives November as the month in which it appears; he also says the galls fall in May, but I found them on the twigs as late as the end of July. The parasites were named by Mr. Walker.

Aphilothrix callidoma, Hart.—When looking for more galls of the last species on the 27th of July, I found one gall of this, from which the imago emerged on the 3rd of August. I watched it cut its way through the side of the wall of the gall; it was about two hours from the time I first noticed it.

The gall is green, about as large as a barleycorn, spindle-shaped, and seated at the end of a rather long foot-stalk, pointed at the apex, and covered with a visible pubescence; in the species before me the pedicel is four lines long, the gall (which is monothalamous) three lines; the pedicel emanates from an aborted bud on a one-year-old twig. Giraud says the gall may be found throughout the summer and autumn. Mayr has only found it in the autumn, so I hope to obtain more specimens, but have not done so at present, although I have searched for some hours on the same stubs on which I obtained this one gall.—E. A. FITCH, Raleigh, Essex: 24th August, 1874.

A further contribution to the Fauna of Lundy Island.—At p. 134 of vol. vi of the Ent. Mo. Mag. will be found a notice of 8 species added to the Coleopterous Fauna of this Island by myself during two days' excursions in August, 1870, the principal object of which was to collect *Hymenoptera*, so that all my captures of beetles were made on turning up stones in search of ants' nests. On the 22nd of August last, having for three weeks searched in vain for *Hymenoptera* at and in the neighbourhood of Ilfracombe, I took advantage of an excursion to Lundy, which gave me about four hours for collecting, and these I devoted entirely to searching for *Coleoptera*.

Mr. T. V. Wollaston has published two lists of the *Coleoptera* of the Island in the Zoologist, the first in 1845, the second in 1847; and the addition of the 8 above-mentioned species to the aggregate number (153) contained in these, increases the list to 161. I have now to add 22 further species, giving a total of 183.

Mr. Wollaston's researches were made during June and July, and my own in August, leaving nine months for further investigations, and the spring especially would, no doubt, produce many species not yet recorded in the lists.

In my remarks on the *Hymenoptera* of Lundy Island, published in the Entomologist's Annual of 1870, I observed that it was the only locality I ever collected at without finding the hive-bee, and I also suggested that the Island was so barren and bleak that probably it could not exist there; since that time a cottager has imported hives, and the insect is now plentiful on the purple heath, and also on the flowers of the blackberry. I may also here record the discovery of two species of *Formicidæ* not enumerated in my former list, namely, *Formica aliena* and *F. cunicularia*.

Sweeping over a stubble field, I was greatly surprised at the immense number of grasshoppers, all apparently *Stenobothrus biguttatus*. Three species of *Homoptera* also occurred in some abundance; these proved to be *Ptyelus bifasciatus*, *P. lineatus* and *Evacanthus interruptus*, the latter being less numerous, but not uncommon. Only two butterflies attracted my notice, they being rather numerous, one was *Polyommatus Alexis*, the other *Chrysophanus phlæas*; but I also observed a small pale buff-coloured moth which darted out of the clumps of heath when I was beating for *Coleoptera*. Mr. Wollaston has only recorded two other lepidopterous insects, (*Cynthia cardui* and *Hadena* [*plebeia*] *dentina*). A Lepidopterist would, I have no doubt, have seen many other species; he must not, however, expect any long list of rarities, the Island being for the most part scanty of vegetation, and its entire area being only three miles and a-half, by little more than half-a-mile at the widest part.

The following is a list of all the species of *Coleoptera* taken on this last occasion by me,—such of them (22 in number) as were first discovered by myself to be part of the Fauna of Lundy being distinguished by an asterisk. Eleven of these, marked †, are not recorded in Mr. Parfitt's catalogue of the *Coleoptera* of Devonshire (though one of them, *Ceuthorhynchus quadridens*, is probably the insect from horseradish, referred to therein as *C. quercicola*):—**Demetrias atricapillus*, *Dromius linearis*, **Tachyporus brunneus*, **Cercus rufilabris*, *Corticaria gibbosa* and *†*Wollastoni*, *†*Meligethes lugubris*, *†*Apion radiolum*, **æneum*, *carduorum*, *†*marchicum*, **humile*, **rufirostre*, and **nigritarse*, *†*Tychius lineatulus*, **Miccotrogus picirostris*, *†*Sibynes primitus*, *Caliodes didymus*, †*Ceuthorhynchus assimilis*, *contractus*, and var.? †*pallipes*, *Crotch* (I have compared this insect with typical *contractus*, and

find that its elytra are not so rugose, being flatter between the striæ. I only took a single specimen, but have seen others; mine has the rostrum yellow before the insertion of the antennæ, with the tip black; all the legs are reddish-yellow, with black tarsi), *†*C. quadridens*, *Ceuthorhynchideus troglodytes*, **Crepidodera ferruginea*, **Phyllotreta atra*, **Thyamis lurida*, *†*xeroleta*, and **melanocephala*, **Cryptocephalus minutus*, †*Psylliodes luridipennis*, Kutsch. (on wild cabbage: hitherto known to science only from this locality), **Coccinella 11-punctata*, *Scymnus limbatus*.—FREDK. SMITH, 27, Richmond Crescent, Islington: September, 1874.

Notes on beetles occurring in the Shetland Isles.—During a recent stay in Shetland, I met with several very interesting varieties of well-known species. The most remarkable was what appears to be a race of *Hydroporus griseostriatus*, smaller, flatter, and broader than the ordinary form, with the front of the thorax entirely pale. This insect occurred not uncommonly in one lake, from which it was difficult to obtain two specimens precisely identical. The markings of some few specimens were (with the exception noted above) identical with those of type *griseostriatus*, while in others the elytra were of a pale straw colour, with extremely faint indications of a few darker lines. Between the two all gradations occurred. In another lake, not very many miles distant, at a greater elevation, and farther north, the ordinary form of *griseostriatus* was in profusion, without any symptom of variation. No special reference to variation in this species is to be found in the ordinary European text-books, except the mention of the elytral lines being more or less widened; but I observe that the late Mr. G. R. Crotch in his "Revision of the Dytiscidæ of the United States" (Trans. Am. Ent. Soc., iv, p. 393) says "the variations in colour in this species have caused it to be described under various names;" and his localities, Canada, Lake Superior, California, give a further extension to its range of distribution, already reaching to Lapland and Unalaska. As there are already four synonymical names to *H. griseostriatus*, I do not venture to propose a new one for this Shetland form, however well marked, more particularly as I have the opinion of M. A. Preudhomme de Borre, of Brussels (who is a high authority on *Hydroporus*, and has kindly examined my specimens), that it is not specifically distinct from *griseostriatus*. I also met with *Hydroporus tristis* and *angustatus*, both conspicuously larger than the ordinary form,—the former evidently more, the latter evidently less, strongly punctured than usual. My assignment of these to the species mentioned has also been confirmed by M. de Borre.

Calathus mollis occurred of a uniformly dark fuscous colour (almost the same shade as *nubigena*). A very peculiar form of *Agabus guttatus* was strikingly narrower and flatter than the type, with the elytra much duller, and *A. maculatus* was in every stage up to almost entirely black. *Arpedium brachypterum* was smaller than usual and quite black, while a form of *Chrysomela staphylæa* occurred of a very short rotundate outline, much duller than usual, and, in some specimens, with the thorax less closely punctured. The occurrence on ground little, if at all, raised above the sea level, of such species as *Nebria Gyllenhalli*, *Pterostichus orinomus*, &c., is, I suppose, to be accounted for by the high latitude of Shetland. I was somewhat surprised to find the Isle of Wight *Trechus lapidosus* here. *Pelophila borealis* occurred in some numbers; and *Chrysomela sanguinolenta* was found under stones, unlike the southern *C. distinguenda*, which may generally be found on *Antirrhinum*.—THOS. BLACKBURN, Greenhithe: September, 1874.

Note on capture of Papilio Antimachus, &c.—I received yesterday from Mr. Rogers, at Fernando Po, a collection of butterflies, interesting chiefly from the large number and remarkable varieties of *Acraea*, which seemed to have its head quarters in that district. Mr. Rogers has at the same time sent me some new species from the Gaboon, with the following interesting account of his capture of *Papilio Antimachus* (the "magnus Apollo" of Lepidopterists):—

"I must now tell you about *Antimachus*. I took it on a small island on the 14th of March. I saw it on the 13th flying round a high tree where I was not able to reach it. I watched it all day in the burning sun until quite exhausted. I could not sleep all night. Next morning I landed on the island early. It was pouring with rain. I watched round the tree, but saw nothing of it till about two o'clock, when the sun shone out brightly, and in a few minutes it made its appearance again, but out of my reach. Suddenly the rain came down again, and *Antimachus* flew towards me, and I took it with the first stroke of my net. I felt so excited that I hardly knew what I did, and when I had pinned it in the box I almost screamed with delight."

Mr. Rogers has sent me a second collection of butterflies from Fernando Po, containing *Papilio Merope* and *P. Hippocoon*, taken by him in copulation, another illustration of the saying that "truth is stranger than fiction." I find it very difficult (even with this evidence) to believe that a butterfly, which, when a resident in Madagascar, has a female the image of itself, should, in West Africa, have one without any resemblance to it at all.—W. C. HEWITSON, Oatlands, Weybridge: 12th August, 1874.

Hermaphrodite Gonopteryx rhamni.—When collecting in east Sussex on the 16th instant, I caught a hermaphrodite specimen of *G. rhamni*.

The left wings are of the usual sulphur-yellow colour of the male insect, and the right wings are of the usual greenish-white colour of the female.

The specimen is in fine condition, and had apparently only recently emerged from the pupa.—H. Goss, Brighton: 20th July, 1874.

Natural History of Lycæna Adonis.—On 30th August, 1873, Mr. A. H. Jones most kindly sent me two living females of this species, which he had just captured at Folkestone. These I placed at once under gauze on a plant of *Hippocrepis comosa*, and, during the three or four days they remained alive, they laid about twenty eggs. The larvæ, I believe, hatched towards the end of September, but, as I kept them on the growing plant outdoors, I could not see them hatching: in October I found the leaflets of the vetch marked with little whitish dots; these were caused by the larvæ tunnelling into the under-side, and eating out the inner substance for a small space, leaving the upper skin untouched, which then turned white.

I kept their cage in a garden frame without bottom heat, but in a warm situation, and thus sheltered them through the winter, and on sunny days the larvæ could be seen enjoying the heat, stretched out—if that term may be applied to such diminutive, dumpy creatures—along the midrib on the upper-side of a leaflet. Up to December they remained less than one-sixteenth of an inch in length, but in January, 1874, some were grown to nearly one-twelfth of an inch, and were not only marking the leaflets with larger blotches, but were also beginning to nibble their edges.

About the middle of March I noticed they had increased somewhat in length, and considerably in stoutness, and that they were now eating the leaflets in the usual way; and by April 1st they were quite one-eighth of an inch long, and could eat a whole leaflet at a meal. Through this month they grew rapidly, the warm weather suiting them well, and they ate voraciously, till, by the 30th, several of the most advanced in growth had hidden themselves under the loose soil for pupation: after waiting eight or ten days, they changed, and finally the butterflies came out between June 2nd and 15th.

Mr. H. Terry of St. Mary's Church, Torquay, informs me that he finds the first flight of *Adonis* on the wing by May 20th, and the second about the middle of August; the two broods, therefore, taking respectively nine and three months out of the twelve to complete all their transformations.

The egg of *Adonis* resembles those of its congeners, being small, round and flattened in figure, the shell covered with raised reticulation, having prominent knobs at the angles; the central portion of the upper surface looks sunk, being covered with finer reticulation with no knobs; the colour is a light dull grey, the reticulation and knobs white.

The larva escapes through an irregular and rather large hole in the upper surface of the egg, and the empty egg-shell looks whitish; the young larva is pale whitish-green, soon becoming a full but dull green; all the warts furnished with hairs, which produce a downy appearance. During the winter months the green is replaced by reddish-brown, and again, in the early spring, the larva becomes pale purplish-brown, with the dorsal humps and the sub-spiracular ridge showing pale ochreous-brown; after a moult, about the end of March, the dull greenish hue comes back, the paler marks becoming yellowish, and the hairs black.

The full-grown larva is about five-eighths of an inch long, and a quarter-of-an-inch wide, onisciform, with the head small and retractile beneath the second segment; the segments deeply divided; there is a double dorsal row of eight humps on segments three to ten inclusive, enclosing a slightly hollow space, which is broadest on three, and thence tapers gradually to ten; the side spreads out to a rounded ridge running round the body, and hiding the legs from view when the larva is at rest; in colour, the head is very dark brown, the body is deep, full green, covered with tiny black specks bearing little black bristles, which are longest on the dorsal humps and sub-spiracular ridge; on the top of each of the eight pairs of dorsal humps is a deep bright yellow longitudinal dash somewhat wider behind than in front; these dashes form in effect two yellow stripes interrupted by the deeply-sunk segmental divisions; along the rounded edge of the sub-spiracular ridge is a stripe of bright and very deep yellow going all round, save a slight interruption on the sides of the second segment; on the second are two yellow dots just above the head, and above them again two small black spots; on the third there is a very faint yellowish dot half-way between the dorsal and sub-spiracular stripes; just above the feet is a row of yellow longitudinal dashes, brightest on the feet-bearing segments, and, in one example, these dashes were curved upwards, and united at the end of each segment to the yellow ridge above; in some specimens the ventral feet are also marked with yellow; the spiracles are conspicuous, being round and black; the pulsating dorsal vessel is rather deeper green than the ground-colour.

Some of my larvæ buried themselves about half-an-inch deep in the loose soil,

and formed a weak sort of cocoon; others, not being supplied with soil that could be easily penetrated, retired under the stems of their food-plants, and in angles formed by the branching stems spun a few weak threads to keep themselves in place.

The pupa is barely half-an-inch long, dumpy in figure; the profile of the back swells out at the thorax, drops in again at the waist, and the abdomen slopes off in a curve to the rounded anal end; the ventral profile is much straighter, though still with a slight curve; the wing-cases reach more than two-thirds of the whole length, and the widest part is just where they end; the thorax and wing-cases are slightly glossy, the abdomen granulated; there are some very small hairs scattered all over; the colour is at first greenish on the wing-cases, greenish-brown on the rest of the body; afterwards ochreous all over, and finally turning very dark the day before the imago emerges.

On comparing the larvæ of *Adonis*, which I sent him, with figures of *Corydon* made some years ago, Mr. Buckler could detect no point of difference except a somewhat different tint in the green ground colour; this made us very anxious to see the larva of *Corydon* again, and our wish was very soon gratified in an unexpected manner. My friend had sent me a great many plants of *Hippocrepis comosa* for my larvæ, and upon one of these that had not been wanted for their use, I found, on June 8th, a half-grown *Lycæna* larva, which had evidently travelled to me out of Hampshire with its food: I had been told that *Corydon* and not *Adonis* occurred at the place whence the plants were procured, but this larva was so like those I had lately reared, that I was quite puzzled: luckily, Mr. Buckler and myself had just been comparing the notes we had made of *Adonis*, and so, seeing in this larva all that I had seen in *Adonis*, except that its bristles were brown instead of black, I sent it on to him at once, drawing his attention to a little point which I had wished him to notice in *Adonis*. Thus, with every incentive to exactness, he examined and figured it most carefully, finding nothing to notice but the tint of the ground colour and the hue of the hairs, and then kept it apart, waiting to see what the imago would prove to be, till on July 31st there appeared a fine *L. Corydon*.

As far, therefore, as our means of comparison have gone, our materials to work upon being some dozen and a-half larvæ of *Adonis* on the one hand, and this one larva of *Corydon* and figures of others taken in 1862 on the other, we can say that the two species resemble each other in the larval state in every particular of form and ornamentation except these two points: *Adonis* has its ground colour deeper green, with the hairs or bristles black, while *Corydon* has the ground colour of a lighter, brighter green (a green with more yellow in its composition), and the hairs light brown.

I have been thus minutely circumstantial in relating what was done by us because the result we have arrived at is not altogether in agreement with what we have been able to find already published. Thus in Stainton's Manual there are descriptions from Freyer, which, according to our observations, rightly distinguish between the green of *Corydon* and the deep green of *Adonis*, but err in making the number of yellow dorsal streaks different, for *Adonis* certainly has but eight in a row, and not twelve.

The only other author accessible to us, Boisduval, speaks of "le grand rapport" "qu'il y a entre cette chenille (*Corydon*) et celle d'*Adonis*," and gives every point of figure and marking as identical, but goes on to say that *Adonis* "est d'un vert très

"pâle un peu jaunâtre," and calls its "tubercules" not black but "bruns;" while *Corydon* "se distinguera toujours assez facilement au premier coup d'œil par sa couleur d'un vert foncé, et par la petitesse de ses stigmates;" and this is directly contrary to what we saw in our examples, viz., the deep green in *Adonis*, and the yellowish-green in *Corydon*, and the spiracles of the same size and form in both.—J. HELLINS, Exeter: August 11th, 1874.

Hybrids between Smerinthus ocellatus and S. populi.—Mr. Henry Stephenson, of this town, has just reared a good brood of the hybrid between *Smerinthus ocellatus* and *populi*. I have seen a large number of them on the setting boards, and very nice they are; the markings and colours of both species coming out very distinctly. Mr. Stephenson tells me the larvæ also equally partook of the characters of both species.—GEO. T. PORRITT, Huddersfield: September 5th, 1874.

Capture of Noctua sobrina.—I had the pleasure of taking at sugar, while staying at Loch Rannoch this summer, two beautiful examples of *Noctua sobrina*. By a curious coincidence, they occurred upon the same tree, a small birch about the thickness of a man's arm. The fore-wings of the first specimen I captured have the red ground colour much suffused with grey; in the second they are of a purplish-rosy shade.—J. B. BLACKBURN, Grassmeade, Southfields, Wandsworth, S.W.: 31st August, 1874.

Description of the larva of Acidalia straminata.—For the opportunity of studying the history of this species, the larva of which, I believe, is hitherto undescribed, I am indebted to the kindness of Mr. G. B. Corbin, of Ringwood, who sent me eggs with the female moth on July 23rd of last year. The eggs are rather large for the size of the moth, oblong-square with the corners rounded, in colour reddish-brown,—deposited loose; they hatched on the 29th of the same month, and the newly emerged larvæ are long and slender,—in colour a very dark brown. They were fed on *Polygonum aviculare*, and grew slowly until autumn, when they hibernated, and re-commenced feeding early in March of this year. A great many of them died during winter and spring, and at the end of May I had only four left. These were nearly full-grown on the 18th of June, when I described them as follows:—

Length about an inch, and rather slender; head rather narrower than the second segment, and deeply notched on the crown; the body is rounded beneath, but rather flattened above, not so conspicuously, however, as in some other *Acidalia* larvæ; the second, third, and fourth segments are the narrowest, and are of about equal width; from the fourth they gradually become wider until the 10th, which is the widest segment, is reached; the eleventh, twelfth, and thirteenth are of about equal width, but narrower than the tenth. The segments overlap each other, rendering the divisions distinct, and, as in other species of the genus, each segment is conspicuously ribbed transversely; the skin has a tough appearance.

The ground colour of the dorsal surface is pale slaty-grey; the head is grey, with the sides and the notch dividing the lobes dark brown; medio-dorsal line very narrow and pale, edged on each side in the centre of the fifth, sixth, seventh, eighth, ninth, and tenth segments, with a narrow black streak,—on the other segments the black edging is continuous, but narrower and much less distinct. On the middle

segments, between the medio-dorsal and sub-dorsal lines, is another series of very black streaks, and these, being situated nearer the sub-dorsal region than the edging of the dorsal line, give the dorsal surface a very pretty variegated appearance. The sub-dorsal lines are of a very indistinct pale slate colour; the spiracular lines are scarcely perceptible even with a lens. The ventral surface is of a uniform pale slate colour, with a very narrow indistinct paler central line, and equally indistinct transverse waved longitudinal lines.

This description applies to the two more strongly marked larvæ; in the others, the black markings on the dorsal surface were comparatively indistinct, in one shewing only as paler confused marks. When nearly ready for spinning up, I had two of them preserved; the others spun loose cocoons in a corner of the cage, and on the 21st July a ♀ imago emerged.—G. T. PORRITT, Huddersfield: *July 11th*, 1874.

Crambus verellus at Folkestone.—On the 22nd ult., whilst collecting at Folkestone with Mr. C. A. Briggs, I captured a specimen of this insect, evidently fresh from the pupa, as the cilia, &c., were perfect. Subsequent searches failed to produce another specimen. —WALTER P. WESTON, 1, Duncan Terrace, Islington, N.: *21st September*, 1874.

Re-occurrence of Lemiododes pulveralis at Folkestone.—Having captured a specimen of *L. pulveralis* in the Warren, at Folkestone, about the beginning of August, I send you an account of it, hoping it may interest some of your readers.—H. VALENTINE KNAGGS, 72, Kentish Town Road: *September*, 1874.

Coriscium Brongniardellum in Ireland.—A few days ago, Mr. P. Riall, of Bray, brought me some oak leaves, both common and evergreen, mined by a larva which Mr. Stainton has kindly identified as that of this species, not previously recorded as a native of Ireland. The mines were very abundant on both kinds of oak.—W. F. KIRBY, Royal Dublin Society, Kildare Street, Dublin: *September 2nd*, 1874.

A further note about Aphelocheirus æstivalis (ante p. 92).—I have been out to-day in search of the winged form, but without success. I took in the course of an hour one hundred and two specimens, eighty full-grown, wingless, and twenty-two larval forms, the smallest of the latter a quarter-of-an-inch long in the body. They appear to be in the middle of the stream, among a broad-leaved species of *Potamogeton*, at least I got only one here and there along the edge of the stream. The place at which they abound is very contracted, not more than four or five yards in length; above and below that spot they turn up sparingly, but there, at one working of the net, I have had from six to fifteen.—JAMES LANDY BROWN, Chapelfield, Norwich: *August 27th*, 1874.

British Hemiptera: correction.—*Derocoris fornicatus*, Doug. & Scott, Brit. Hem., 329, sp. 11. From some specimens sent me by the late Mr. T. J. Bold, and taken, I believe, by Mr. Hardy on or in the neighbourhood of the Cheviots, I have been enabled to satisfy myself that the above insect is merely a northern form of *D. striatellus*. The series consisted of the reddish-yellow type form, with all intermediate varieties, one of which is in my possession. It will be necessary, therefore, to refer the name as a synonym to *D. striatellus*.—JOHN SCOTT, 37, Manor Park, Lce: *September 16th*, 1874.

Captures of Hemiptera on the west coast of Scotland, with description of a new species.—I spent fourteen of the early days of August in this locality, and this record might well be headed “A search for *Hemiptera* in the Wet,” for it rained more or less, or rather more than less every day, with a continual storm of wind.

About half-a-mile from Saltcoats begins a series of sand-hills which extends south-west to Troon—seven or eight miles. On these hills grows the Marram (*Psamma arenaria*), and the valleys are covered with grass, thyme, *Jasione montana*, *Galium verum*, &c., and in places with a dwarf sallow. I thought I had discovered a happy hunting ground like Deal, which the place entirely resembles:—

“But oh! the difference to me.”

I have taken more insects at Deal in a quarter-of-an-hour than I saw here in a day. The “common objects of the shore” were absent—there was nothing common. I think that the dearth of insects in a place apparently so favourable for them is mainly caused by the fierce wind, which here seems to sweep for ever over the surface, so that nothing can abide. Deal, it is true, is affected by stormy winds, but they are gentle in comparison with those by which this coast is afflicted. The only thing worth a pin was *Nysius maculatus*, Fieb., found holding on among the herbage.

At Saltcoats under the shelter of a stone wall, among the roots of *Achillea millefolium*, I got two examples of *Acocephalus histrionicus*; and at the root of *Senecio Jacobæa* a single specimen of what I believe to be the macropterous form of *Athysanus sordidus*; also *Acocephalus polystolus*, Fieb.

At the Isle of Arran, in the lovely Glen Rosa, *Sphyrops ambulans* was abundant among ferns, and *Limotettix striola*, Fall., on rushes. I got one *Thamnotettix cruentata*, Panz., on heather; and one *Lygus rugicollis*, Fall., on sallow. On the margin of the “burn” that comes tumbling down the glen, I found *Salda saltatoria*, Linn., *S. littoralis*, Linn., and *S. stellata*, Curt.

At West Kilbride, in the avenue of Crosbie Castle, I got the rare macropterous form of *Bryocoris pteridis* on ferns; on the adjacent moors, *Acocephalus bifasciatus*, Linn., and *Agallistes saltitans*, Fall. (1), among tall heather. *Ptyelus spumarius*, L., was common, but all the examples of this usually variable species were remarkable as being of one uniform pattern, and light brown colour. On a plant of Southern-wood (*Artemisia Abrotanum*) growing in a shepherd's garden, I found the larva, pupa, and imago of a species of *Typhlocybidæ*, which I believe to be undescribed, and which may be briefly characterised as follows:—

EUPTERYX ABROTANI, n. sp.

Upper-side pale greenish-yellow. Head usually with two dark spots on the front, but sometimes immaculate. Pronotum sometimes with one or two brown spots on the sides. Scutellum black at the basal angles. Elytra: corium broadly pale exteriorly, inwardly, except at the base, with long, broad purplish-brown dashes extending to the apex; the nerves of the pale ground colour; claval pale, usually with a brown central streak and one or two small brown spots. Wings diaphanous, iridescent; nerves black. Legs pale yellow. Abdomen black on the under-side; in the ♀, the last abdominal segment posteriorly, and the genital segments on each side of the middle, broadly pale yellow. Length, 1½ line.

This species was first taken last year by the Rev. T. A. Marshall, on southern-wood in his garden at Lavingham.—J. W. DOUGLAS, Lec : Sept. 2nd, 1874.

DESCRIPTION OF A NEW SPECIES OF *LIBURNIA* FROM BISKRA
(ALGERIA).

BY JOHN SCOTT.

In the spring of this year, MM. Lethierry and Puton made a pilgrimage to Algeria in search of insects, as, I believe, they have done before, and great success seems to have attended their enterprise, as each succeeding journey has added novelties to the fauna. I can see no reason why the greater portion of the insects found on the extra European portion of the basin of the Mediterranean should not occur on the most southerly shores of our continent; climate and soil are identical, and similar localities are almost as numerous in the one as in the other. Greece and the Archipelago on the east, and Spain on the west, are comparatively unworked places, and Roumelia, and indeed the whole of the western shore of the Black Sea, may be placed in the same category.

I understand that Dr. Puton is engaged upon a new edition of his "Catalogue des Hémiptères Heteroptères d'Europe," which may be expected to be published before this year expires, and in it he contemplates adding a list of the insects of this order known to him to occur in the basin of the Mediterranean. This will be of infinite value to all those who are studying the European forms of *Hemiptera*, which course, I am sorry to say, is almost exclusively confined to continental naturalists. I may add that it was at the request of M. Lethierry, I have undertaken to write the description of the insect that follows, and that there are several other species in different genera, which he purposes describing himself.

Genus *LIBURNIA*, Stål.

(*DELPHIACINUS*, Fieb.).

Species *LIBURNIA PUTONI*, Lethierry (M.S.).

Head pentagonal (Section D, Scott in Ent. Mo. Mag., vol. vii, p. 29 (1870).

Undeveloped form, ♂. *Head*, *pronotum*, and *scutellum*, pale testaceous. *Elytra* black, with a broad, transverse, whitish, or pale testaceous-white band at the base. *Abdomen* black, with a narrow yellowish dorsal line.

Head—*crown* pale testaceous, keels acute, somewhat prominent; basal foveæ distinct. *Face* and *antennæ* pale testaceous, keels of the former somewhat acute and distinct. *Eyes* testaceous, exteriorly fuscous.

Thorax—*pronotum* and *scutellum* pale testaceous, shining. *Elytra* black, with a broad, transverse, whitish or pale testaceous-white band at the base; nerves distinct, not granulated; near each basal angle a pitchy-brown spot; entire

marginal nerve testaceous; posterior margin straight, angles rounded. *Legs* pale fuscous-testaceous; *tibiæ* darkest; *tarsi* testaceous; apex of the third joint and *claws* brown.

Abdomen black, with a narrow yellowish dorsal line; sides with a yellow spot at the posterior angle of each segment; genital segment black; styloid processes somewhat billhook-shaped, the points above turned towards and touching each other.

Undeveloped form, ♀. Testaceous.

Abdomen above testaceous, with a fuscous shade, sides with two longitudinal, pitchy-brown lines interrupted at the anterior margin of each segment.

Length $1\frac{1}{4}$ line.

On the nerves of the elytra of the ♀ I possess, and also on others (but not all), in the collection of M. Lethierry, are some minute pitchy-brown or black granules, but these are so irregularly placed, and so different in position on each elytron, that I believe them to be accidental, and not characteristic of the species.

The only other insect I know referable to this section is our *L. mesomela*; the white head, pronotum, and elytra of which will at once distinguish it from the species now described.

37, Manor Park, Lee, S.E.:
September 1874.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

[Revision of the genus *STRONGYLOCEPHALUS*, and description of a new species.]

In the revision of the genus *Acocephalus*, Ent. Mo. Mag., vol. ix, p. 264, I refer to Flor's removal of the then only known species from the last named genus, on account of the very perceptible differences in the structure of the head alone, to that of his genus *Strongylocephalus*. At the time I then wrote, I had not seen a British exponent of *agrestis*, Fall., and it is only within the last few days that I have had this pleasure. The number of insects I have examined and supposed to be this species is very great. In each and every instance, they have proved to be the *Athysanus obscurellus*, Kirschb., an insect as unlike the true *S. agrestis* as any two insects could reasonably be. My friend the Rev. T. A. Marshall's description of *Acocephalus agrestis*, Ent. Mo. Mag., vol. ii, p. 197, will therefore require to be referred to *Athysanus obscurellus*, as also the insects representing it in his collection, which last he has kindly allowed me to have in my possession for many months. I had begun to think that the genus *Strongylocephalus* had no representative here; but some few months before the

death of my friend Mr. T. J. Bold, he sent me two specimens of an insect which I could not determine from any description to be met with in books. After sending it to Dr. J. Sahlberg (who returned it without a name, or even a remark), I bethought me of Dr. Fieber's drawings and M. Lethierry, to whom I wrote, asking him to be good enough to let me see them for a single day ; and, owing to his great kindness, I have been enabled to satisfy myself that Mr. Bold's species is no other than *Strongylocephalus Megerlei*, Fieb. This name, which I retain in respect to his memory, is only to be met with on the drawing and in his Catalogue of Cicadinen, published in 1872. I thereupon hastened to draw up a description, and had actually sent it to be printed, when, amongst some *Homoptera* collected by Mr. E. Saunders at Chobham, my eye fell upon the real "Simon Pure," the missing *S. agrestis*. I am now, therefore, able to describe the only two species at present known to be European. After studying the descriptions of *Amblycephalus irroratus*, Curtis, B. E., 572, n. 6, and *Phrynomorphus nitidus*, ♂, Curtis, Ent. Mag., i, 194, I believe they also only refer to *Athysanus obscurellus*, Kirschbaum.

Sub-Family JASSINA, Stål.

Genus STRONGYLOCEPHALUS, Flor.

Species 1.—STRONGYLOCEPHALUS AGRESTIS, Fall.

Cicada agrestis, Fall., Hem. Suec. Cicad., 36, 18 (1826).

Acocephalus (*Strongylocephalus*) *agrestis*, Flor, Rhyn. Livl., ii, 210, 6 (1861).

♂. Dusky testaceous. *Elytra*—*corium* : nerves greyish, irregularly spotted with fuscous-brown ; disc irregularly spotted with fuscous-brown ; anterior marginal nerve interiorly with a frequently much interrupted fuscous-brown line, towards and round the apex, broken into three or four larger patches.

Head—*crown* dusky testaceous without a narrow black line just within the anterior margin ; disc more or less thickly covered with minute curved and wavy lines and spots of fuscous-brown. *Face* dark fuscous-brown, thickly spotted with testaceous. *Clypeus* testaceous or yellowish, narrowly margined with fuscous-brown. *Cheeks* testaceous or yellowish, thickly spotted with fuscous-brown. *Antennæ* fuscous-brown, first joint white, second at the apex white ; *scæ* fuscous-brown.

Thorax—*pronotum* dusky testaceous, finely wrinkled transversely, except next the anterior margin ; disc thickly covered with very short streaks and fuscous-brown spots between the wrinkles. *Scutellum* dusky testaceous, with a few fuscous-brown spots next the base. *Elytra* dusky testaceous. *Clavus* : disc and nerves

irregularly spotted with fuscous-brown ; inner marginal nerve between the apex and the central nerve with a fuscous-brown streak interiorly. *Corium* dusky testaceous, nerves greyish, anterior marginal nerve interiorly with a fuscous-brown line, more or less interrupted and broken into spots ; towards and round the apex three or four larger patches, and below the apex of the clavus one or two short streaks also fuscous-brown ; inner nerves and disc irregularly spotted with fuscous-brown. *Legs* yellowish or brownish-yellow. *Thighs* : first and second pairs black for two-thirds their length from the base, or with longitudinal streaks ; before the apex a narrow black ring ; third more or less fuscous-brown or black. *Tibiae* exteriorly of the first and second pairs alternately spotted with fuscous-brown or black and white ; third exteriorly with a few black punctures, in which some of the yellowish spines are set. *Tarsi* fuscous-brown ; base of the second and third joints narrowly yellowish-white.

Abdomen beneath black ; external processes of the genital segments brownish-yellow, broad, rounded and recurved at the apex ; upper margin black ; exteriorly with several stout, erect, yellowish, or brownish-yellow hairs.

♀. Somewhat greyer throughout than the other sex ; the markings larger and more pronounced, whilst frequently some of the cells are entirely fuscous-brown, or sparingly spotted with minute yellowish-grey spots.

Length, ♂, $2\frac{1}{4}$; ♀, $2\frac{1}{2}$ lines.

Differs from the next species in the absence of the dark line next the anterior margin of the crown ; the paler and much more spotted face, the grey nerves of the corium, and the dark brown margins to the cells of the same. Three examples (one ♂, two ♀) taken by Mr. E. Saunders, at Chobham, in August, by sweeping in a damp place amongst some osiers.

Species 2.—*STRONGYLOCEPHALUS MEGERLEI*, Fieb. (M.S.).

Dark testaceous. *Elytra* : nerves more or less broadly and irregularly margined with dark brown ; round the apex four or five, generally the latter, dark brown patches. *Legs* somewhat brownish-testaceous. *Thighs* : first and second pairs with a black ring before the apex. *Tibiae* : first and second pairs on the anterior margin and sides with irregular black spots.

Head—*crown* somewhat brownish-testaceous, with a narrow black line extending from eye to eye, just within, and running parallel with, the anterior margin. *Face* black, the lower half more or less thickly covered with minute yellowish-brown spots occasionally confluent ; lower margin narrowly yellowish-brown. *Clypeus* black, with a few yellowish-brown spots. *Cheeks* yellowish-brown, with several short black irregular streaks or spots. *Antennae* pitchy-brown ; apex of the second joint brownish-yellow ; *setae* pitchy-brown.

Thorax—*pronotum* somewhat brownish-testaceous, posteriorly finely wrinkled

transversely, and faintly sprinkled with a few black atoms. *Scutellum* somewhat brownish-testaceous, with a small triangular black spot near each basal angle. *Elytra* dark testaceous, sides of the nerves thickly but irregularly punctured, giving to the disc a finely crenate appearance. *Clavus*: nerves very finely margined with dark brown, frequently interrupted at irregular intervals; apex of the dorsal suture with a short dark brown streak, and apex of the central nerve with a somewhat triangular spot of the same colour. *Corium*: nerves margined with dark brown, in some portions very finely or almost obsolete, in others more broadly and irregularly; immediately within the anterior margin, several short dark brown spots or short streaks, more or less joined, and more or less distinct, terminating in a larger elongate patch, almost in a line with the transverse nerve at the base of the ante-apical area, below the latter patch is another somewhat shorter and broader; round the apex, three others generally joined interiorly, and forming a somewhat M-shaped character, and a short streak below the apex of the clavus; interior and exterior cubital nerve, next the apex, generally dark brown; all the other nerves, more especially towards the apex, spotted with dark brown. *Sternum* black. *Legs* brownish-testaceous. *Thighs*: first and second pairs black, apex, and a ring before the latter, brownish-testaceous; third black, upper and lower margins somewhat brownish. *Tibiæ* brownish-testaceous, apex and a few spots down the anterior margin of the first and second pairs, black; third brown, anterior margin spotted with black, in which the brown spines are set, apex black. *Tarsi* brownish-testaceous; apex of the first and third joints broadly black, second brown.

Abdomen above black; side margins narrowly brownish; posterior margin of the segments very narrowly yellowish; beneath black, sides brownish-testaceous; posterior margin of the last segment in the middle testaceous; last genital segment black; external processes broad, brown, somewhat piceous towards the apex, and with two rows of very fine punctures down the middle and almost touching each other.

Length $2\frac{1}{4}$ lines.

I have only seen two specimens, both ♂, which were sent to me for determination by the late Mr. T. J. Bold, who kindly presented me with one of them.

Manor Park, Loc, S.E.

September, 1874.

DESCRIPTION OF TWO NEW GENERA OF SCARABÆIDÆ.

BY D. SHARP, M.B.

The two genera here characterized are of considerable interest, owing to the structure of the ventral portion of the hind-body. Were it not for a peculiarity in this respect, they would take their place in the group of the *Aphodiides*, in the neighbourhood of *Ægialia*. But the structure of the part alluded to is quite that of the *Trogides*; and

I think it will therefore be advisable to consider them as forming a small separate group, to be placed near the *Aphodiides*. Though the structure of the hind-body appears to be so like that of *Trox*, in their other characters these insects do not show any considerable approach to the *Trogides*. The genus *Eremazus* of Mulsant belongs, I have little doubt, to this group, which may be called *Tolisides*, if it be considered necessary to give it a special name. Though Mulsant does not speak of the structure of the hind-body, he placed his genus in the *Trogides*. Lacordaire, to whom this genus of Mulsant was unknown, placed it with doubt in the *Aphodiides*, calling attention, however, to Mulsant's silence as to the structure of the hind-body. It is also worth while noticing that Fairmaire has described (Ann. Soc. Ent. Fr., 1870, p. 374) an insect under the name of *Ægialia Marmottani*, which I feel pretty certain is a member of the group *Tolisides*. Fairmaire tells us that he did not dare to take off its card the single example known of his *Æ. Marmottani*; but the characters he mentions to distinguish it, viz., the invisible eyes, the unstriated elytra, and the Trachyscelid facies, leave no doubt in my mind that it is a member of the group here established. *Ægialia Marmottani* was found at Biskra in Algeria; and it is highly probable that it is synonymous with *Eremazus unistriatus*, Muls.

MILLINGENIA, n. gen.

Antennæ small, eight-jointed, 1st joint stout, oval (much narrower just above the base than at the extremity), its length not quite twice its width, 2nd joint stout, quite twice as broad as the following joints, joints 3, 4 and 5 small, the 5th shorter and scarcely broader than the 4th, closely applied to and not very distinct from the base of the 6th joint, joints 6—8 forming a comparatively large oval club, the sutures of which are transverse.

Mandibles short but very thick, outwardly rounded, the inner margin forming three or four stout teeth.

Maxillæ with both lobes distinct, the inner one small, apparently horny, and divided into three or four short finger-like lobes. The upper lobe membranous, armed on the inner side with six or seven pointed spinulæ, furnished outwardly with a long, fine pubescence. Maxillary palpi long, four-jointed, the terminal joint elongate-oval, longer than the two preceding joints together.

Mentum rounded at the extremity and emarginate in the middle, *ligula* entirely concealed; *labial palpi* three-jointed, 1st joint slender, cylindric, moderately long, 2nd joint sub-triangular, about as long as broad, 3rd joint oval (or rather pear-shaped), longer than the 2nd joint.

Labrum transverse, the front margin slightly emarginate in the middle, but covered with a dense pubescence, which projects much beyond the labrum and prevents its form being seen.

Head small, the clypeus very short, in the middle with a prominent small notched process, which projects over the labrum, but which cannot be seen without dissection, on account of the hairs with which the front margin is fringed, the mandibles exposed; eyes small, placed at the lower part of side of the head, and not at all visible from above.

Prosternum very short. *Mesosternum* rather large, separating the middle coxæ by only a thin lamina; middle coxal cavities elongate, obliquely transverse. *Metasternum* moderately long.

Hind-body composed of five ventral horny segments, of which the basal one is visible only at the sides and in the middle as a small process projecting between the hind coxæ: on dissecting off the hind-body, however, the existence of a sixth segment is found to be indicated, by a very small upright process (just as in the genus *Trox*) placed in front of the process mentioned above as forming the middle of the basal segment; 2nd, 3rd, and 4th segments rather short, about equal to one another, 5th segment comparatively long, about as long as the two preceding segments together.

Legs short, and very robust, the front tibiæ tridentate, the two lower teeth very long and pointed; the hind tibiæ very broad, on the outside with two very deep notches; their apical spurs pointed, not dilated; the middle tibiæ similar to the hind ones, but not so stout. All the tarsi 5-jointed, the hinder ones with the joints broad and flattened, the basal joint about as long as the three following together, the last joint terminated by a single short unguiculus.

The insect is of convex form, and its facies is a good deal that of *Ægialia globosa*.

MILLINGENIA FOSSOR, *n. sp.*

Transversim valde convexa, fulva, suprâ (marginibus exceptis) nuda, subtus sat dense longius ciliata; capite ruguloso-punctato; prothorace fortiter transverso, æquali, crebre punctato; scutello parvo, lævi; elytris crebre punctatis, estriatis, sed sulci humeralis obsoleti indicationibus. Long. corp. $4\frac{1}{2}$ mm.; lat. 2 mm.

This interesting insect was captured by Dr. Millingen, in Lower Egypt: probably in the neighbourhood of Cairo. I have had much pleasure in naming this important genus in his honour, our collections in this country having been enriched by him with many interesting and novel species from the East.

TOLISUS, *n. gen.*

This genus is closely allied to *Millingenia*, but its facies is rather that of *Aphodius* than *Ægialia*, and it differs by its larger eyes, which, however, are concealed under the front angles of the thorax, and by its tarsi being furnished with two unguiculi. As minor characters, I may mention that *Tolisus* has the metasternum and the apical segment of the hind-body remarkably elongate, the metasternum, moreover, is provided near its hind margin on each side with a curved impression to adapt it to the femora; and the front tibiæ have also one or more

additional small teeth on the upper part. I have not dissected the mouth, but do not think from what I can see of its parts that they would present any important difference from *Millingenia*.

TOLISUS AENEUS, n. sp.

Livide-testaceus, suprâ æneus, nitidus (marginibus exceptis) nudus, subtus longius minus dense ciliatus; pedibus rufescentibus; capite crebre ruguloso-punctato; thorace transverso, cum elytris sparsim punctatis, præter punctos majores punctis minutis adpersis; elytris sulco post-humerali obsoleto. Long. corp. 4 mm.

I have received two individuals of this species taken by Dr. Millingen at Jeddah, and I have a third specimen from Western Syria which I believe to belong to the same species, though it is a little smaller, and has the upper tooth of the front tibiæ smaller than in the Arabian individuals.

TOLISUS MINOR, n. sp.

T. æneo simillimus sed paulo minor, cumque mandibulis minus validis haud adeo porrectis. Long. corp. $3\frac{1}{2}$ mm.

I have only a single specimen of this species; it was brought from Ajmere, North-Western India, by Mr. Crowder.

Thornhill, Dumfries:

October 25th, 1874.

DESCRIPTION OF A NEW SPECIES OF HETEROMEROUS COLEOPTERA BELONGING TO THE GENUS *TOXICUM*.

BY CHAS. O. WATERHOUSE.

TOXICUM TRICORNUTUM, sp. n.

Elongatum, cylindricum, atrum. Capite plano crebre punctulato. Thorace convexiusculo, longitudine paululo latiori, irregulariter discrete punctato, antice leviter emarginato, postice bisinuato, angulis anticis obtusis, lateribus rectis parallelis, angulis posticis acutiusculis. Scutello parvo, semicirculari, punctulato, piceo. Elytris thorace paulo latioribus, triplo longioribus, parallelis, ad apicem arcuato-acuminatis, sat fortiter striatis, striis sat crebre fortiter punctatis, interstitiis leviter convexis obsolete subtilissime punctulatis. Corpore subtus nigro-piceo, nitido. Ore antennis pedibusque piceis.

Long. $5\frac{3}{4}$ —8 lin., lat. 2— $2\frac{3}{4}$ lin.

Mas: Clypeo cornu brevi erecto ad apicem dilatato et emarginato. Fronte supra oculos auriculis duobus brevibus acutis divaricatis, intus longe fulvo-pilosis, instructa.

Fem.: Clypeo in medio convexo. Fronte utrinque supra oculos carinata.

Hab.: Japan, Yokohama.

Coll. Brit. Mus.

British Museum: October 13th, 1874.

ON A NEW GENUS OF LONGICORN BEETLES FROM AUSTRALIA.

BY CHAS. O. WATERHOUSE.

*CERAMBYCIDÆ (Phoracanthides).**DEMELIUS, gen. nov.*

Palpi short, stout, with the apical joint truncate. Head short, very slightly convex between the antennæ, longitudinally canaliculate. Antennæ nearly reaching to the apex of the elytra, rather stout, pubescent; the basal joint sub-cylindrical; the second shorter than broad; the third and fourth joints scarcely as long as the first, with a strong spine at the apex on the inner side; the fifth, sixth, and seventh as long as the first, more slender than the preceding, distinctly spined at the apex; the eighth to tenth becoming shorter and more slender, with scarcely any trace of apical spine; the eleventh joint flattened. The eyes well separated above, the lower lobe projecting to the front of the antennal orbit. Thorax transverse, narrowest behind, with two tubercular processes on each side, and two on the disc. Scutellum triangular, equilateral. Elytra convex, parallel, truncate at the apex, each furnished with two distinct spines. Legs long; anterior coxæ nearly globular; the femora sub-linear, unarmed; posterior tarsi with the basal joint as long as the two following together. Prosternal process narrow, arched. Mesosternal process moderately broad, arched. Body, above and below, in parts thickly clothed with pubescence. Allied to *Orion*.

DEMELIUS SEMIRUGOSUS, sp. n.

Nigro-piceus; capite thoraceque suprâ dense albo-pubescentibus, hoc quadrinodoso postice utrinque fusco-maculato. Scutello medio albo. Elytris thorace vix latioribus sed quadruplo longioribus, sat convexis, apicem versus rotundato-angustatis, ad apicem truncatis, quadri-spinosis, suturâ lineisque sex fusco-pubescentibus, pone medium fasciis duabus irregularibus albo-pubescentibus; basi fortiter dense punctatis, apice sublævibus. Antennis pedibusque dense griseo-fusco-pubescentibus; femoribus in medio fere nudis, albo-annulatis. Corpore subtilus fusco-pubescenti, griseo-albo-maculato.

Long. 14½ lin., lat. 5½ lin.

I need only add to the above description that the three basal joints of the antennæ are much less densely clothed with pubescence than the following. The thorax is furnished on each side with two somewhat acute processes, the posterior one being the more prominent; behind this the thorax becomes narrower, being at the base not broader than the head; the disc has four nodules, of which two are situated near the front, and are somewhat acute; the posterior pair are wider apart, elongate and oblique. The basal half of the elytra is very strongly punctured; about the shoulders the punctures are honey-combed. There is a white spot below the shoulders on the margin.

Hab.: Queensland.

Coll. Brit. Mus.

British Museum: September 14th, 1874.

DESCRIPTION OF A NEW SPECIES OF *APION* FROM THE
SHETLAND ISLES.

BY THE REV. T. BLACKBURN, B.A.

APION RYEI, *n. s.*

Oblongum, nigrum, nitidum; rostro arcuato, thorace longiore, feminae longiore quam maris, medio dilatato, punctato; antennis brevibus, articulo primo basi testaceo; femoribus (apice excepto) tibiisque anticis flavis; thorace brevi, lato, lateribus rotundatis, parce profunde punctato; elytris fortiter punctato-striatis, interstitiis vix elevatis.

Long. corp. 1 $\frac{1}{4}$ —1 $\frac{1}{3}$ lin.

This species is separated from all the rest in the group with the femora and anterior tibiae alone yellow, by its short broad sparingly punctured thorax (which is scarcely, if at all, longer than broad) the sides of which are very evidently rounded. Its rostrum is as strongly arched as in *ononidis*, from which, however, besides the thoracic and other characters, its short dark antennae (resembling those of *assimile*) distinguish it. It appears to me most nearly allied to *fagi*, from which it differs (besides the thoracic characters) by its shorter rostrum and antennae, the greater arcuation of the former, and the darker base of the latter. Its larger size, apart from thoracic and other differences, at once removes it from *assimile* and *trifolii*.

I have examined the European collection at the British Museum, and descriptions of all European species of *Apion* I could ascertain to have been described in the yellow-legged group, without finding anything like this insect. I should have wished to forward it to M. Wencker, as the highest authority on the genus, before taking any further step, but his untimely decease has prevented my doing so. Under the circumstances, I think I am justified as describing it as new. I dedicate it, as a tribute of respect, to my friend Mr. E. C. Rye.

This insect was obtained, first by my friend Mr. C. E. Lilley, and subsequently by myself, by promiscuous sweeping in the Shetland Islands, last July. Unfortunately, I mistook it at the time for *fagi*, and did not give particular attention to its food-plant.

Greenhithe: October, 1874.

DESCRIPTION OF A NEW SPECIES OF *ERIOCAMPA* FROM SCOTLAND;
WITH NOTE ON A VARIETY OF *TAXONUS EQUISETI*, FALL.

BY P. CAMERON, JUN.

ERIOCAMPA TESTACEIPES, *sp. n.*

E. nigra, nitida, genubus, tibiis, tarsisque testaceis; alis subfumatis.

Long. corp. 2 lin.; exp. alar. 5 lin.

♂. Antennæ black, a little longer than the abdomen. Head black, shining. Thorax black, shining; cenchri large, dull grey. Abdomen black. Wings slightly longer than is usual in the genus; scarcely hyaline, having a smoky tinge; costa and stigma black. The marginal nervure is received nearly into the middle of the third sub-marginal cell; and it is more perpendicular than in the other species: the cell structure of the posterior wings is the same as in *E. Cinxia*. Feet with the femora black, except at the apices, which, with the tibiæ and tarsi, are testaceous; posterior tarsi fuscous.

The colouration of the legs at once distinguishes *E. testaceipes* from the other European species of *Eriocampa*. It seems to be most nearly related to *E. Cinxia*.

I captured one example on alder growing close to the Church at Kilmorack, near Beaulieu, on 6th June last.

TAXONUS EQUISETI, Fall.

In Scotland there occurs a variety of *Taxonus equiseti*, Fall. (*bicolor*, Kl.), which differs from the type in having only a somewhat triangular blotch (broadest at the posterior part of the segment) instead of the whole of the third abdominal segment red. This variety (which embraces both sexes) is tolerably constant, and is interesting as shewing that *Taxonus coralis*, Kl., must be regarded as a variety of *equiseti*; for it does not differ from the latter, except in the fact that it has two instead of three abdominal segments red; and the Scotch form with its two and a half segments red, forms a link between the other two. Furthermore, I possess a specimen of *equiseti* with four segments red, and with, moreover, the stigma white at the base; so that it looks as if *T. sticticus* were also a variety. *T. equiseti* has sometimes the labrum black.

136, West Graham Street, Glasgow:
October, 1874.

DESCRIPTION OF A NEW *PAPILIO* FROM MADAGASCAR.

BY W. L. DISTANT.

PAPILIO LORMIERI, *sp. nov.*

Wings above black, fringes spotted with pale sulphur-yellow; front wings with discoidal cell streaked with four parallel lines of yellowish-grey; a spot on lower discocellular, a straight, oblique, transverse series of nine pale yellow oval spots, the two nearest to costa only divided by third sub-costal branch; between the fifth to ninth spots four milky pyriform patches; a sub-marginal series of eight small pale yellow spots; hind wings crossed at the middle by a transverse pale yellow irregular band; a large black spot on abdominal area, margined inwardly with blue scales and outwardly by a reddish-orange lunule, a more obscure spot similarly margined on

apex; from the abdominal spot to second sub-costal branch an irregular line of golden scales interrupted on each interspace by a blue spot; a sub-marginal series of five pale yellow spots; a semi-circular spot of the same colour on each side of the tail; body above dark brown; palpi pale yellow; wings below nearly as in *Papilio Menestheus*, but the discal series of spots in front wings straight; body below pale yellow; abdomen with two ventral parallel lines of black.

Expanse of wings, about 5 inches 2 lines.

Captured by the late Mr. L. Lormier. Habitat: Madagascar.

NOTE.—The species figured by Mr. Trimen as *Papilio Menestheus* appears not to be typical.

Streatham Cottage, Buccleuch Road,
West Dulwich, S.E.:
October, 1874.

DESCRIPTIONS OF FIVE NEW SPECIES OF *ACRÆA* FROM WEST AFRICA.

BY W. C. HEWITSON, F.L.S.

ACRÆA VINIDIA, *sp. n.*

Upper-side: dark brown. Anterior wing with a spot near the apex, and a broad band below it to the middle of the inner margin, marked (not always) by a black spot, both rufous-orange. Posterior wing scarlet with the base and outer margin dark brown; a small black spot on the middle of the costal margin.

Under-side: rufous. Both wings with the outer margin rufous-brown marked by a series of pyramidal spots. Anterior wing with a spot in the cell, a band at the end of the cell, and two small spots below these, all black; the sub-apical spot of the upper-side nearly white. Posterior wing with fifteen small black spots between the base and the middle; two of them near the base, two near the costal margin, two in the cell, two beyond these and seven between them and the inner margin.

Exp. $1\frac{8}{10}$ inch.

Hab. Angola.

Near *A. Eponina*; its chief difference being the arrangement of the basal black spots which are here spread over half the wing, and in *Eponina* crowded together near the base.

ACRÆA ORINA, *sp. n.*

Upper-side: ♂, dark brown. Anterior wing with the cell scarlet; a band of six spots, three of which nearest the apex—sometimes dull white, sometimes rufous,—are at an angle with the other three, which are scarlet, and placed between the branches of the median nervure, the last forming a band near and parallel to the inner margin. Posterior wing scarlet with several spots crowded together near the base, and the outer margin all black.

Under-side: ochreous-yellow. Both wings with the nervures as they approach the outer margin and lines between them dark brown. Anterior wing with the

brown as above, but paler. Posterior wing with four spots near the base, an oblique band of four spots and a central band of eleven spots, three of which are near the costal margin and four (minute) at the end of the cell.

Exp. $2\frac{2}{10}$ inch.

Hab. Fernando Po (Rogers).

No dependance can be placed upon the number of spots near the base of the posterior wing. The specimen I have described has nineteen spots, another has only thirteen, two or three spots being sometimes united into one.

ACRÆA ORETA, *sp. n.*

Upper-side: ♂, dark brown. Anterior wing with the cell (where it is marked by two black spots), a band parallel and near to the inner margin, and an oblong spot between the first and second median nervules, and two small spots below these, all scarlet; an oblique band of three white spots beyond the middle. Posterior wing scarlet with several spots near the base, a band of spots at the middle and the outer margin, which is finely indented inwardly, all black.

Under-side: ochreous-yellow. Both wings with the nervures near the outer margin and lines between them brown. Anterior wing with a central spot of brown. Posterior wing with four spots at the base, an oblique band of five spots, three spots, one minute, in the cell, and a central transverse band of eight spots, all black.

Exp. $2\frac{7}{10}$ inch.

Hab. Fernando Po (Rogers).

ACRÆA OPPIDIA, *sp. n.*

Upper-side: dark brown. Anterior wing with an indistinct rufous band parallel and near to the inner margin; two central spots of the same colour (one in the cell), an oblique trifold white spot beyond the middle. Posterior wing brick-red, with the base, which is marked by three or four black spots, and the outer margin, dark brown.

Under-side: ochreous-yellow. Both wings with the nervures near the outer margin and lines between them dark brown. Anterior wing clouded with brown from the base to the middle. Posterior wing marked near the base by sixteen black spots, four of them near the base, two oblique bands of four each, three spots near the costal margin and a minute spot near the middle.

Exp. $2\frac{7}{10}$ inch.

Hab. Fernando Po (Rogers).

ACRÆA ORESTIA, *sp. n.*

Upper-side: ♂, anterior wing transparent, clouded with brown, chiefly at the base and outer margins, the nervures black. Posterior wing rufous-orange, with some black spots near the base and inner margin (better to describe from below), and a circular series of seven spots of the same colour at the middle; the outer margin dark brown, dentated inwardly.

Under-side: as above, except that neither of the wings is margined with brown. Posterior wing with three spots at the base, an oblique band of four spots, a spot on the costal margin and a larger spot in the cell, all black.

Exp. $1\frac{9}{10}$ inch.

Hab. Fernando Po (Rogers).

Near to *A. Cerasa* as well as to *Quirina*.

Oatlands, Weybridge:
October, 1874.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from p. 62).

Phtheochroa rugosana, Hübn.—The larva of this species does not appear to have been noticed in this country. Its habit of feeding in the unripe berries of *Bryonia dioica*, and spinning up on the stem, is recorded by the late Senator von Heyden in the Stettin. ent. Zeitung, and translated in the Entom. Annual for 1867 by Mr. Stainton. M. Millière (Icon. iii, p. 334) states that it feeds also upon *Ecballium elaterium* (not a British plant).

Eriopsela fractifasciana, Haw.—According to M. Jourdhueille's Calendar, the larva of this species feeds in heads of Scabious in dry fields.

Eriopsela quadrana, Hübn.—Continental specimens of this and the preceding species are larger than ours. Professor Zeller tells me that in Switzerland *E. quadrana* flies in June and July, but in Germany in May, as with us.

Chrosis tesserana, Tr. (Schiff.).—Dr. Wocke has had the misfortune to discover an earlier name for this species in "Der Naturforscher"—*Alcella*, Schultze (1776). The beautiful variations in colour which it frequently assumes in this country seem to be unknown in Germany.

Chrosis Audouinana, Dup.—This also Dr. Wocke corrects to *bifasciana*, Hübn., undoubtedly an earlier name. He places it in the genus *Heterognomon* (a sub-division of *Tortrix*), with *viridana*, *Bergmanniana*, *Conwayana*, &c.

Argyrolepia æneana, Hübn.—In addition to Wilkinson's localities, this has occurred, but not commonly, at Haslemere in the south of Surrey.

Argyrolepia Schrebersiana, Fröl.—In Germany, Prof. Zeller tells

me, this species is found commonly on *elm*, and M. Jourdhcuille says "larva under bark of large poplars and elms." But, as far as can be ascertained, all the specimens obtained in this country have been from the fens of Huntingdonshire and Cambridgeshire, where they must surely find some other food.

Argyrolepia Mussehliana, Tr.—This species is very closely allied to *Eupæcilia Geyeriana* and *vectisana*, and may possibly be found in collections under the latter of these names or that of *griseana*. I have an old specimen which was sent me many years ago under one of these names, and three more exist in Mr. Douglas's Collection, but their localities cannot now be traced. Besides Mr. Doubleday's two specimens taken by Weaver in Devonshire, these are the only British examples that have come under my notice.

Dr. Wocke sinks *vectisana*, Wilk., into a synonym of these species, but the two species, although allied, are certainly distinct. *Mussehliana* seems out of place in the genus *Argyrolepia*, and should be included in *Eupæcilia* with its allies; but German authors ignore both genera, placing the whole of their species, with those contained in *Chrosis*, *Lozopera*, *Xanthosetia*, *Dapsilia*, and *Argyridia*, in the genus *Cochylis*, Tr.; and in Wocke's List these genera do not even form separate sections of that genus, but are mixed together in a wonderful manner. In the case of very rare insects like this and the preceding, it is exceedingly difficult to obtain a satisfactory knowledge of their habits and food. Professor Zeller tells me that *Mussehliana* flies in fields where *Linum catharticum* abounds, and he evidently thinks the insect attached to that plant, which is found only in *dry* pastures; but M. Ragonot assures me that he has taken the moth in France, in *marshy* meadows. M. Jourdhcuille relates that the larva feeds in stems of *Alisma*, but I feel no doubt that this is an error for *udana*, Gn. The habits of the whole of this group are still involved in great obscurity.

Argyrolepia Baumanniana, Schiff.—Changed by Dr. Wocke to *Hartmanniana*, Clerek (Linn.), a much earlier name.

Argyrolepia subbaumanniana, Wilk.—Not noticed in Staudinger and Wocke's Catalogue, nor till lately in Mr. Doubleday's List. I have found it commonly in old chalk pits near Norwich, and am thoroughly convinced that it is distinct from the preceding species, with which I have also been familiar in the damp woods of the south of England. To this, Mr. Doubleday and Professor Zeller, neither of whom was previously acquainted with the species, now agree. Wilkinson's description and distinctive characters are excellent, but many of the Norfolk specimens are far smaller than his measurement, some not exceeding five lines in expanse.

Argyrolepia badiana, Hübn.—Wilkinson is in error in saying that this species is to be found wherever the burdock (*Arctium lappa*) grows. It is, in fact, rather local, though common, where it occurs. I never could meet with a specimen in either the Haslemere or the Norwich districts, although burdock is reasonably common in both neighbourhoods; and Mr. Doubleday tells me that this is the case also at Epping Forest. On the other hand, Mr. Stainton once met with about five hundred specimens in one locality.

Argyrolepia cnicana, Dbld.—Dr. Wocke sinks this species (with doubt) into a variety of *badiana*, and the same opinion has been expressed by Prof. Zeller, under the impression that both forms are to be found flying together. This is not the case in this country, *cnicana* being apparently confined to damp localities, and generally found among thistles. Its characteristic form and markings are very constant, and I have no doubt that it is truly distinct. It seems to be widely distributed, as I have found it rather commonly near Haslemere, Surrey, and more rarely near Dublin and in the Norfolk fens, while specimens have been sent me from Cumberland, Yorkshire, &c.

I find that some years ago Mr. Doubleday sent specimens of both species to the late Herr Lederer, who then became convinced of their distinctness, not having previously seen the true *badiana*.

Argyrolepia Dubrisana, Curt.—Corrected by Dr. Wocke, and also by Mr. Doubleday in the Supplement to his List, to *zephyrana*, Tr.; and this Prof. Zeller confirms.

Argyrolepia maritimana, Gn., Wilk.—Professor Zeller assures me that this is only a large, dark variety of *zephyrana*, Tr., and much like the variety called *margaritana* by Herrich-Schäffer. To this opinion, in the absence of counter evidence, it seems advisable to submit, particularly as *zephyrana* is certainly a most variable species both in size and in the presence or absence of dark grey scales. In *maritimana* these scales are so abundant as to give it a strikingly distinct appearance at first sight, but there appears to be no reliable character. Dr. Wocke records six varieties of *zephyrana*, placing this form last.

Culoseitia nigrimaculana, Haw.—Placed by Dr. Wocke in his genus *Steganoptycha*, between *pauperana* and *ramella*, and far away from the present family, with which it ill assorts.

(To be continued.)

Agabus maculatus.—The mention of this species in my notice last month, on *Coleoptera* occurring in Shetland, was due to an accidental error. The specimens on which it was founded were taken near Braemar.—T. BLACKBURN, Greenhithe: October, 1874.

Note on the occurrence in England of Helophorus tuberculatus, Gyll.—Of this insect, the most remarkable European member of its genus, I have observed two specimens (taken in *Sphagnum* in the Manchester district) among some insects sent to me for names by Mr. Joseph Chappell of Hulme. The species is of the average size of *H. nubilus*, and at once recognisable by its deep black colour and the conspicuous polished tubercular elevations on the second, fourth, and sixth interstices of its uneven elytra. Some of these elevations are oblong, but the majority (in one specimen the whole) are rounded blunt tubercles, thus exhibiting a slight variation from the type in which all are "*aliquot oblongis*." The insect occurs in Lapland, Sweden, and North Russia, and is also recorded by Zebe from Prussia.—E. C. RYE, Parkfield, Putney, S.W.: October, 1874.

On imported Coleoptera.—I have this year kept a good look out for beetles amongst the timber imported here (see "Entomologists' Annual" for 1874, p. 55), and have found *Astynomus ædilis* and *Thanasimus formicarius* again pretty common, but not nearly so abundant as last year. All the larvæ of *ædilis* I have seen (some hundred) were feeding on the inner skin of the bark, and not on the timber; but they scooped out a place in which to pupate. I have also taken eight *Monohammus sutor* and five *Pogonocherus fasciculatus* on pit props imported from Sweden, and several of *Hylobius abietis* and *Pissodes notatus*, which I judge were bred in timber imported from France, and part of which is still stored on the quay.

I have noticed communications of the capture of *M. sutor* at various places inland, but this does not surprise me in the least, seeing that in nearly every instance the recorded localities are *collieries*, or very near collieries. Now, nearly every colliery is supplied with foreign pit props and timber, and when this is taken into consideration, one has not very far to look for the reason of *sutor* being captured in such a locality. There are hundreds of tons of timber and props sent from here weekly to collieries in Yorkshire and Lancashire, every inch of which is from foreign ports.

Apropos of Longicorns, I am much astonished at a recent assertion by a supposed authority, that these beetles only attack living, healthy trees, for I got some scores of *Rhagium bifasciatum* in Teesdale last spring out of tree trunks so rotten that I could have kicked a whole tree trunk down with my foot (I mean those trunks which had been blown off by the wind five or six feet from the bottom, of which there were plenty in the wood in which I was collecting). I never saw timber so rotten; it was literally dropping to pieces, and I could put my pocket knife into the trunk up to the haft.—J. GARDNER, 8, Friar Terrace, Hartlepool: September, 1874.

Observations on a viviparous Chrysomela.—Last year I collected some examples of *Chrysomela venusta*, among which were females with the abdomen much enlarged; these I placed, living, in a box. What was my surprise upon finding, next day, young larvæ eating the leaves of *Helosciadium nodiflorum* that I had placed with

the insects, which latter I had found upon this plant which grows in marshy places. I was much astonished at the circumstance, and, wishing to verify the facts, I returned several days afterwards to again take the females, but did not find any, and, to my great regret, was obliged to defer my observations to this year. Already I had the thought that the insects were really viviparous, and from the time of their appearance set to work to find females in order to study them attentively.

I found two on the 31st of May in a very satisfactory condition for observation. Upon returning home I placed them in a suitable bottle, and next day was able to convince myself that they were really viviparous, for they laid no eggs, but gave direct birth to larvæ already rather large. I remarked that all were deposited in the same position, the abdomen appearing first, attached by an appendage of the last segment, that serves for locomotion during an early age, either to a leaf of the plant or on the glass of the bottle. The larvæ remained in this position for a minute without moving, their colour being that of a gummy substance. At the end of this time they commenced to colour and to become agitated: after ten minutes they were completely brown, and were already feeding upon the plant I had placed with them.

They changed their skin for the first time on the fifth or sixth day, a second time on the twelfth; on the sixteenth to eighteenth they had gone into the earth, and I have seen nothing of them since.

I do not know that this fact has been recorded, and think even that viviparous generation has only been noticed in the two Brazilian *Staphylinidæ* mentioned by M. Schiödde.—L. BLEUZE, in the "Petites Nouvelles Entomologiques" for October 1st, 1874.

Note on the existence of stridulating organs in the genus Lomaptera.—While examining some specimens of the genus *Lomaptera*, I have ascertained the existence of some powerful stridulating organs in some of the species of the genus. If a specimen of *Lomaptera Latreillei* be examined, there will be found at the side of the second abdominal segment, close to the edge of the elytra, a slightly raised space thickly set with fine slightly-curved lines like a file, these lines being continued along the hinder margin of the segment for some distance; and a similar structure will be noted on the following third segment; and if the femur be examined, its inner surface will be found to be entirely covered with coarser and less regular lines. That these lines afford a means of making a noise is at once pretty clear, and is very easily demonstrated by seizing the hind tibia with a pair of forceps, and by its assistance moving the femur backwards and forwards with a slight pressure so as to make it grate against the abdominal surface, when a loud creaking or stridulation is produced.

This power is not confined to either sex; but, on the other hand, it is confined to one group of species of the genus, viz., the large oblong and but slightly convex species, in which the color is only slightly metallic; and among these species it will afford some valuable means of distinguishing the species; thus, in the *Lomaptera fasciata* of Burmeister, which inhabits the island of Waigiou, there is on the fourth abdominal segment an imperfect additional file, of which there is no trace in the *L. bivittata* of Gory, which inhabits New Guinea; these two species being now considered as only one (I think, erroneously). In the peculiar species *L. plana*, the inner surface of the femur is very rugose, but the raised abdominal files are absent,

and there is only a comparatively imperfect series of the lines on the third abdominal segment, with some still more imperfect lines on the second and fourth segments, and the stridulating power of the species is comparatively slight. In some of the metallic species (with the peculiar developed pygidium) the inner surface of the femur is finely and densely rugose, but there is no stridulation produced by its friction against the abdomen; and in some of the red-legged species the inner surface of the femur is nearly smooth.

In the *L. nigrita* group there is no stridulating power.

So far as I am aware, stridulating power arising from friction of the extremity of the femur against the sides of the abdomen has not yet been indicated in the order *Coleoptera*.

Among the Lamellicorns there are many varieties of stridulating by peculiar apparatus arranged for the purpose, so that one is inclined to believe that the power of making a creaking noise is of some value to the species possessing it. Whether it is of use by making some enemy who has seized an individual abandon it from fright or surprise, only direct observation can show; but, judging from the loud noise produced in *L. Latreillei* on the dead specimen, I can well suppose that during life, when the noise is probably louder from the more perfect adaptation of the parts to one another, the sound produced may be really of use in this way.—D. SHARP, Thornhill: August 11th, 1874.

Note on Aulacothorax exilis, Boheman.—In the "Eugenies Resa," Boheman has described and figured (p. 35, pl. 1, fig. 1) a small Coleopterous insect from Taliti under this name. The insect is placed by him, without any indication of doubt, in the family *Scydmanidæ*; but the figure of the species, and a magnified representation of its leg, point it out as belonging to the Tetramerous series of *Coleoptera*, the tarsi bearing the characteristic structure of that group. I should suppose it to be probably an Anthribid, allied to *Choragus* or *Xenorches*; but possibly it may be a Bruchid, allied to *Urodon*. The generic description throws no light on the insect, for the characters given can scarcely be considered generic; most of them, indeed, being reiterated word for word in the specific description. As the genus is ranged in the *Scydmanidæ* in von Harold's catalogue of *Coleoptera*, I suppose that Boheman's error has not yet been recognized, so I have thought it well to call attention to it.—ID.: 29th September, 1874.

On the mode of stridulation of Coranus subapterus, De Geer.—In the Mittheil. d. schweiz. ent. Gesells., iv, p. 159, Herr O. M. Reuter has a note on this subject, the result of his recent observations. He says that the stridulation, which was first noticed by De Geer, is not caused in the manner in which Westwood, after Goureaux, states that it is made in some species of *Reduviidæ*, especially *Peirates stridulus*, namely, by the friction of the neck within the prothoracic cavity; but that although *Coranus*, when it begins to stridulate, inclines its head up and down so that the neck moves to and fro in the pronotum, yet it is not by this means the sound is produced. The insect moves the extreme point of its rostrum up and down the longitudinal channel of the prosternum, and only then the sound comes forth; when the rostrum was removed the stridulation ceased. Viewed under the microscope, the channel of the prosternum was seen to be very finely and closely striated transversely, and had

all the conditions of stridulation of a violin, the rostrum working as a violin bow. Herr Reuter adds it is likely that other species of *Reduviidae* stridulate besides those hitherto noticed, and that it is probable the sound is caused in all by means like those in *Coranus*.—J. W. DOUGLAS, Lee: September 7th, 1874.

On the resemblance to ants among the Hemiptera.—In the same volume, p. 156, Herr Reuter has some remarks on the resemblance of certain *Hemiptera* to ants, especially referring to the apterous females of *Systellonotus triguttatus*, L., which sex only is extremely like the workers of *Formica fusca*, the males being furnished with ample wings. When the "British Hemiptera" was in preparation, females were not accessible for description, but I caught some in time to put a figure on plate 12, and, in the 2nd volume of this Magazine, p. 30, I gave an account of their capture in the galleries of *Formica fusca*. Of the nature of the food of this species nothing appears to be known. The *Capsina* are believed to be all phytophagous, but in the present species the inquiline habitat and the imitation of the ants in structure and agility, both by the adult female and the early forms (Herr Reuter seems to think that the last is so in both sexes), seems to point to the food being either the ants themselves—larvæ or pupæ probably—or to some nourishment brought by the ants into their nest. I have (*l. c.*) suggested the former, and hoped that the matter would ere this have been elucidated by some Hymenopterist, but it still requires an investigator.

Herr Reuter also remarks on the similarity to ants of both sexes of *Diplacus albo-ornatus* Stål., and *Myrmecoris gracilis*, Sahlb. Both are very rare, and Herr Reuter suggests that by analogy they should be sought for in ants' nests. The latter species he once found near to a nest of *Formica rufa*. Both have yet to be found in Britain.

Camaronotus cinnamopterus, which in both sexes is very like a small *Formica rufa*, as noticed in the "British Hemiptera," p. 359, is constantly found on trees, &c., in company with that ant.

Myrmedobia coleoptrata, Fall., was found on a bank at Highgate, in company with small black ants, but not in their nests. Neither sex is like an ant, and the apterous female resembles the Coleopterous *Alexia pilifera*, which was found at the same time and place. But, as Herr Tieffenbach found the bugs in the ants' nests, it is certain that this want of similarity is no bar to the safety of the lodgers.—ID.

The British species of Chrysopa examined with regard to their powers of emitting bad odours.—The beautiful 'lace wing' or 'golden eye' insects forming this genus have, from the days of the earliest naturalists, laboured under the stigma of emitting disgusting odours, and have thus acquired the popular name of 'stink-flies.' Upon the principle that one or two notoriously bad characters in a community give a bad name to the whole, many persons unjustly condemn all 'golden eyes' individually and specifically, and I have often been surprised to find how deep-rooted is the belief in their universally noxious habits even among observant field entomologists. Several writers on the genus (including myself) have frequently pointed out that it is only some few species that have the power of emitting these odours when handled. During this summer I determined to test this subject with regard to our native species. Of the genus, as it now stands, we have twelve species, and I have examined

living examples, during the season, of ten of these, carefully applying each individual to my nose as soon as caught; and probably nearly one hundred specimens have passed under this ordeal. The result is that in no one instance did any individual of *C. flava*, *alba*, *flavifrons*, *tenella*, *aspersa*, or *ventralis*, emit any appreciable odour; and I think *C. vittata* must be placed in the same category, although I have not this season had living examples before me. *C. vulgaris* I regard as 'suspected,' but the odour is uncertain, and, if present, almost inappreciable. *C. perla* and *phyllochroma* emitted a considerable amount of bad odour (and I think *C. abbreviata* does the same). *C. septempunctata* was, as usual, intensely disgusting, and I believe it is this species in particular that has acquired for the whole genus a bad name, and more especially because it is a garden insect, and thus comes more frequently under notice. The two exceedingly rare species of *Nothochrysa* (*capitata* and *fulviceps*) have not been tested, and, indeed, have never been seen alive by me (excepting one example of *capitata*), but I believe they are as inodorous as are the majority of species of *Chrysopa*. The moral to be drawn from this is:—don't condemn a whole flock because there happen to be a few 'black sheep' in it.—R. McLACHLAN, Lewisham: August, 1874.

Abnormal appearance of Noctua festiva.—Some ova of *Noctua festiva*, laid at Rannoch at the end of last July, hatched in August, and the larvæ, feeding up very rapidly on *Polygonum aviculare*, began to change to pupæ about the 18th September. The first moth appeared on the 3rd October. This, for a hybernator (in the larva-state) is a pretty rapid transition.

I also obtained ova of *Aplecta occulta* at the same time, and have now a number of pupæ, the first larvæ having entered the pupa state on the 21st September. My friend Mr. Geo. Norman has, I believe, already recorded that he induced this insect to dispense with its accustomed hibernation.

Neither of the above species has been exposed, either as larva or pupa, to a higher temperature than the ordinary one of a room looking north, and without a fire.—J. B. BLACKBURN, Grassmeade, Southfields, Wandsworth, S.W.: October 14th, 1874.

On the food-plant, &c., of Lygris reticulata.—This moth (known to the followers of Guenée's arrangement as *Cidaria reticulata*, though Staudinger widely separates it from *C. silaceata*, which it generally resembles) was discovered some ten years back in the English Lake District, but has always remained one of our greatest rarities. Freyer, in Germany, had discovered the larva feeding upon *Impatiens noli-me-tangere*, and it is a significant fact that the Lake District is the chief locality for this rare plant in Britain. In the Stett. ent. Zeitung, 1874, pp. 237—240, Pastor Fuchs has a long and interesting paper on its habits. He finds the imago in Prussia, in places where the *Impatiens* grows, from the end of July to the middle of August. The quite young larvæ were observed towards the middle of October, and they would appear to feed up very rapidly. The larvæ much resemble the unripe seed-capsules of the plant and feed upon them, though chiefly on the leaves, hiding themselves in the dead leaves during sunshine. But he does not appear to have been fortunate, for his pupæ died shortly before the time of emergence of the imago. These hints may enable some of our northern Lepidopterists to find the insect more

plentifully, and to breed it from the larvæ. It is somewhat curious that, feeding also on the *Impatiens* at the same place, Pastor Fuchs found the larvæ of *balsaminata*, which Guenée considers only a var. of *silaceata*, and which precedes that species in Staudinger's catalogue. When the larva of *reticulata* really becomes known in this country, southern entomologists will no doubt try it with *Impatiens fulva*, now becoming so common on the banks of the tributaries of the Thames; and perhaps it might not even refuse garden balsam.—EDS.

Emmelesia unifasciata three years in the pupa state.—In September, 1871, I collected a considerable quantity of the larvæ of *Emmelesia unifasciata* off *Bartsia odontites*. A few of the moths made their appearance in 1872, the greater number appeared in 1873, and the remainder, eight or ten specimens, emerged this season, having been three years in the pupa state.—A. H. JONES, Shrublands, Eltham: 8th October, 1874.

Obituary.

Francis Walker. More than twenty years too late for his scientific reputation, and after having done an amount of injury to entomology almost inconceivable in its immensity, Francis Walker has passed from among us. More than forty years ago, he became prominently known as an entomologist through his monograph of the minute parasitic insects of the family *Chalcididæ*. This was originally published in the old 'Entomological Magazine' with which Walker was closely connected.

Whatever shortcomings time may have proved to exist in that monograph, it marked an era in the study of its subject, and, as coming from the brain and pen of quite a young man, gave reasonable promise of a brilliant future. And its author never seemed to have forgotten his first love: he continued to publish on the group, and almost his latest productions, written at a time when his entomological reputation was worn to shreds, were on the *Chalcididæ*. Next to these insects, the *Diptera* and *Aphididæ* seem at one time to have engaged his special attention; and he was the nominal author of the three volumes on *Diptera* forming part of the 'Insecta Britannica' series, though the universal verdict of Dipterists accords most of the merit of this work to the part actually written by Haliday.

This latter publication brings us to the commencement of the second half of the present century, about which time Walker, in an unlucky moment, was induced to commence the series of British Museum Catalogues, that, associated with his name, have become objects of derision to all conscientious entomologists. As time wore on, volume after volume of these Catalogues appeared in a continuous stream, and almost on every order of insects, *Coleoptera* excepted (coleopterists have probably had their share of Walkers under other names). As *compilations* they are remarkable proofs, not only of the plodding industry, but also of the great amount of bibliographical research exhibited in them; and had Walker been content to leave them as *compilations*, they would have been regarded as blessings by all. But, essaying to do that which is beyond the power of any individual, he set to work to 'describe' in all orders, and multitudes of both generic and specific names are attributable to him. The result was what might have been expected. The work was done mechanically: 'New genera and species' were erected in the most reckless manner, and instances are on record in which individuals of one and the same species have been proved to have been made by him to do duty under several generic (and

more specific) names. The inevitable consequences soon followed. The author, and the authorities of the British Museum who permitted the scandal, came under the lash of such criticism as has happily seldom been directed against scientific men. This criticism had no other effect than (apparently) to increase the evil. Walker, by nature, appeared to be utterly indifferent to anything that could be hurled at him, and the only apparent answer on the part of the ruling power at the Museum was the commencement of Catalogues of hitherto unassailed groups or orders. With no courage to resist such commands, the duties were accomplished, each part meeting the like verdict at the bar of scientific opinion as its predecessor; though we heartily believe that Walker was inwardly conscious of his inability to perform the tasks imposed upon him.

The evil did not stop here. Possessors of rich private collections who desired names for their insects, and travellers wishing to have Natural History appendices to the narrations of their adventures, naturally thought there could be no better authority than the semi-official compiler of Catalogues for the chief entomological collection in the world; and Walker was probably never known to decline any request from such quarters, so that, eventually, he may be said to have become a mere describing machine; and, not content with inflicting upon entomology the damage caused by his Catalogues, the pages of every available medium were filled with his lucubrations. To their honour, be it said, the Linnean and Entomological Societies long ago declined to publish some of his papers, so that the evil was somewhat mitigated, and of late his publications were few, outside the Catalogues. With regard to these latter, and much of his later work, he had not even the excuse of pecuniary need, for we believe his circumstances were such as to place him beyond the suspicion of being influenced in this way.

We earnestly hope that never again will it fall to us, nor to our successors in entomological journalism, to have to write such an obituary notice as this. That the motto, '*De mortuis nil nisi bonum*,' will be directed against us we fully expect; and we answer before-hand that we have only judged Walker as an *entomologist*. In his social relations he was amiability itself, and probably there are few men who have lived to the age of 65 (his age at the time of his death), and made so few enemies. Even those who felt most keenly the disrepute into which he brought the entomological section of our great Natural History Museum, will miss with regret his courteous salutation and simplicity of manner.

Mr. Walker died at his residence, Elm Hall, Wanstead, Essex, on the 5th of October, after what must have been a short illness. He was, we believe, of Scotch descent, and of an originally quaker family. He leaves one son, a clergyman (known as a collector of exotic butterflies), and several daughters.

William Lello. This gentleman was born in Shropshire, but at an early age settled in Liverpool, where, until his death, he was engaged in very active commercial pursuits, his short leisure being entirely devoted to the study of entomology and its handmaiden botany, often leaving himself without that rest and care for health which are necessary for a continuance of successful study. Although of strong constitution, possibly to this cause may, in a great measure, be traced the source of a very rapid illness which proved fatal, somewhat suddenly, on the 19th September last, at the age of 41 years. Being of reserved temperament, he never courted a large acquaintance, but those who knew him fully appreciated his active, generous, and undemonstrative friendship. He leaves a very considerable collection of *Lepidoptera*, formed under difficulties which would have daunted many.—[J. T. C.]

BRITISH HEMIPTERA—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

(continued from page 12.)

SALDA MARGINELLA.

Salda marginella, Fieb., Eur. Hem., 145, 8 (1861), nec H.-S., nec *S. marginalis*, Fall. (vide *S. opacula*, Zett. p. 9, ante).

Oval, black, with short decumbent black hairs, and slight golden pubescence. *Antennæ* black, first joint on the base, apex and under-side, and the second before the apex, ochreous or testaceous. *Pronotum*: sides slightly rounded. *Elytra*: anterior margin, except the base and apex, ochreous, with a short interruption beyond the middle, disc with ocellus, streaks and spots similar to *S. saltatoria*.

Head: face clothed with fine golden pubescence; *clypeus*: margin incrassated, ochreous. *Antennæ* black, finely haired; first joint ochreous on the base, apex, and under-side; second, ochreous or testaceous before the apex.

Thorax—*pronotum* short, sides slightly rounded, flattened, anterior callus with a single fovea, bordered before and behind with a row of punctures. *Scutellum* with a large, posteriorly abrupt fovea, surface crenulate, more strongly behind the fovea. *Elytra*—*clavus* with a posterior, triangular, whitish spot; *corium*: margin black on the basal fourth and the apex, otherwise ochreous, the sub-linear colouring widest posteriorly, wholly, or very nearly quite interrupted beyond the middle by a slight jutting out of the black ground colour, so that there appears to be a long, pale, marginal line, followed by a shorter one; inside the latter, and all but joined to it, is a round, whitish spot, and usually two other smaller ones in a line with it nearer the base; middle nerve black, bordered posteriorly on each side by an ochreous line, the outer one curved into the apical black spot; the usual ocellus near the base small, but distinct; the inner posterior angle with two or three very small ochreous spots; the posterior margin narrowly black; *membrane* ochreous, at the base more or less with cloudy, blackish spots, the nerves and a long spot in each cell black, the marginal area ochreous, broadly bordered with fuscous, and with a long black spot exterior to the outer cell. *Legs* testaceous; *thighs* with a black line beneath, inner-side with brown spots; *tibiæ*: outwardly with a black line from the base, short on the third pair, apex of all with a black spot.

Abdomen: beneath clothed with blackish hairs, the posterior margin of the segments narrowly whitish. Length $1\frac{2}{3}$ line.

Very close to *S. saltatoria*, L., from which it is *primâ facie* distinguished by the first marginal streak of the elytra being the longest, and by a certain softness of the markings which is difficult to express in words. I have an example named for me, by Dr. Fieber which answers very well to his description in the "Europäischen Hemiptera," but not to Herrich-Schäffer's description or figure of

S. marginalis (*marginella*), which are quoted by Fieber. Of the difference of the latter, Fieber seems to have become aware, as, after the publication of his work, he wrote on the ticket of my specimen, "*S. marginella*, Fieb., Eur. Hem., nec II.-Schff." Thoms. Opusc. iv, 407, 13, quotes *S. marginella*, Fieb., = *S. opacula*, Zett., but, as above noted, this is not correct.

Hitherto rare; I have two examples which I took at Deal, in August, 1863.

SALDA FUCICOLA.

Salda fucicola, J. Sahlb., Not. Fenn., xi, 301 (1870).

Short-oval, black, dull; densely clothed with golden pubescence. *Antennæ* black, 1st joint testaceous inwardly, 2nd fulvous on the apical third. *Pronotum* short, sub-trapezoidal, anterior callus long. *Elytra*—*clavus* with a sub-apical spot. *Corium*: anterior margin in the middle with a long linear vitta, followed by a shorter one which does not reach the apex, and is frequently confluent with the lowest of three spots in a line next the marginal area, the disc otherwise marked as in *S. saltatoria*, L., but more distinctly; all the markings pale ochreous. *Membrane* pale ochreous, base (except two pale spots), nerves, and a long spot in each cell, black. *Legs* pale testaceous.

Head—*clypeus*: anterior margin narrowly incrassated, ochreous. *Face* ochreous or testaceous. *Rostrum* piccous. *Antennæ*: 1st joint testaceous, exteriorly with a black line; 2nd about twice the length of the 1st, mostly fulvous on the apical third.

Thorax—*pronotum* short, sub-trapezoidal, faintly punctate, sides anteriorly slightly rounded, flattened, the margin slightly reflexed, anterior callus occupying more than half the length, with one central fovea. *Scutellum* large, with a slight, transverse, median depression. *Elytra*—*clavus* with a sub-apical, elongate, ochreous spot. *Corium*: anterior margin at the base reflexed, in the middle a long linear vitta, followed by a shorter one which does not quite reach the apex; next to the vitta and exterior to the median nerve are three spots in a longitudinal series, the posterior one sometimes confluent with the lower marginal vitta; within the median nerve, towards the base, is the usual ocellus faintly defined except at its base; the black median nerve posteriorly, on the outer side, usually with a fine line, and on the inner side one shorter, broader, curved or sinuate; on the inner angle of the corium three or four small elongate spots more or less distinct (sometimes obliterated); all the markings pale ochreous, the three sub-marginal spots palest. *Membrane* pale ochreous, base black, with an ochreous spot in each of the two inner cells; nerves, and a long spot or streak (varying in width) in each cell, black; marginal area pale fuscous, below the outer cell a sub-quadrangular black spot, the anterior cuneiform space and a posterior spot

pale ochreous. *Legs* pale testaceous, anterior coxal sheaths margined with whitish; *thighs* with a fine black line beneath; on the sides a row of small piceous punctures; *tibiæ* with fine, short, black spines, base and apex narrowly black; *tarsi* with apex of 3rd joint black.

Abdomen black, under-side with pale golden pubescence, the posterior margin of the segments narrowly (the last one more broadly) whitish.

Length $1\frac{1}{2}$ — $1\frac{3}{4}$ line.

This species, which appears to be good and distinct, has doubtless been confounded with *S. saltatoria*, to which it has near affinity. It may be distinguished from it by its somewhat broader form, by the colour not being so deep a black, by the greater density of the pilosity, by the first marginal vitta of the elytra being long, and by the greater size and distinctness of the markings.

Dr. Sahlberg found his examples under sea-weed on the shores of the White Sea. I have taken specimens on the coast at Folkestone, Deal, Isle of Wight, and Stevenston, and also at inland localities.

BRITISH HEMIPTERA—ADDITIONAL SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

CAPSINA.

PHYTOCORIDÆ.

PHYTOCORIS PINI.

Phytocoris pini, Kirschb., Caps., 40, 21 and 123, 3 (1855); Fieb., Europ. Hem., 261, 11 (1861).

Brownish or reddish-brown, clothed with semi-erect black hairs, thickly intermixed with depressed white ones. *Head* with three or four transverse reddish or dusky-red streaks. *Antennæ*: 1st joint as long as the pronotum; 2nd, twice as long as the 1st; 3rd, about three-fourths the length of the 2nd; 4th, two-thirds the length of the 3rd. *Pronotum* with a velvety-black, more or less interrupted, line on or just within the posterior margin. *Scutellum* with a dark brown or black longitudinal streak on each side of the centre. *Elytra* brownish or reddish-brown, or more or less grey coloured and spotted with dark brown or blackish-grey. *Legs* dark fuscous-brown or black; *thighs* spotted longitudinally with white, 3rd pair with a more or less broad, transverse, white band on the inside before the apex; *tibiæ* dark fuscous-brown or black, with two narrow whitish or yellowish-white rings,—on the 1st and 3rd pairs two, on the 2nd three.

Head brownish or pale reddish-brown. *Crown* next the pronotum frequently dark brown, and divided in the centre by a short longitudinal line; next the anterior margin two dusky-red transverse streaks. *Face*: side lobes with two dusky-red transverse streaks, the intermediate spaces more or less whitish; apex of the central lobe generally pale. *Antennæ* dark brown or fuscous; 1st joint as long as the pronotum, longitudinally spotted with white, and with longish, erect, somewhat remote, black hairs; 2nd and 3rd narrowly white at the base, the former with a more or less distinct pale band just beyond the middle. *Rostrum* pale reddish, apex black.

Thorax—*pronotum* greyish-brown, frequently somewhat reddish in front; lateral margins with long black hairs, especially next the anterior angles; just within the pale posterior margin is a more or less interrupted velvety-black line; callosities in front generally darker than the disc. *Scutellum* brownish or greyish-brown, with a more or less distinct dark brown or black streak on each side of the centre, diverging posteriorly, central line narrow, frequently whitish; apex broadly whitish; basal angles dark brown. *Elytra* brownish or reddish-brown, or more or less grey coloured, and more or less spotted with dark brown or blackish-grey, generally most distinctly next the anterior margin; the trapezoidal patch at the apex of the inferior margin paler than the disc, its inner margin next the cells with a black clavate line not reaching to the lower angle. *Cuneus* brownish or greyish-brown, sometimes with a faint reddish tinge; exterior basal angle narrowly pale; apex, and a more or less interrupted line on the inner margin, black. *Membrane* fuscous, with a distinct white almost round spot at the apex of the clavus; disc more or less thickly covered with confused, short white streaks and spots; cell nerves dark, lower margin of the great cell-nerve white. *Legs* dark fuscous-brown or black. *Thighs*: 1st and 2nd pairs spotted longitudinally with white, the spots of irregular size; 3rd irregularly spotted with white, and with a more or less broad, transverse, white band, placed obliquely before the apex. *Tibiæ* dark fuscous-brown or black; 1st and 3rd pairs with two whitish or yellowish-white rings placed one before and one beyond the middle, those on the 3rd broader than those on the 1st, and with a few black punctures on the outside, in which are placed some of the brown spinose hairs; 2nd pair with three whitish or yellowish-white rings, two placed somewhat as in the other pairs, the third at the apex. *Tarsi* brown, 1st joint generally, apex of the 3rd and claws darkest.

Abdomen underneath dark fuscous-brown or black.

Length $2\frac{3}{4}$ lines, barely.

This species belongs to the group in which are *divergens*, *ulmi*, *populi*, and *dimidiatus*, sometimes agreeing to a great extent in colour and markings with one and sometimes with another of these species. It is, however, to be identified from all of them by the shortness of the 1st joint of the antennæ. In *P. pini* it is only as long as the pronotum, whereas in the others it is longer.

Taken by Dr. F. Buchanan White on pine trees at Braemar.

LITOSOMIDÆ.

ALLOCOTUS (Fieb. M.S.), Puton.

Ann. Soc. Ent. Fr., 5 sér., iv, p. 218 (1874).

♂. Slightly elongate, sides almost parallel.

♀. Ovate.

Head obtusely triangular in front. *Crown* short. *Face* almost perpendicular; central lobe projecting beyond the side lobes. *Eyes* large, their outer margin projecting beyond the sides of the pronotum. *Antennæ*: 1st joint stoutest, projecting for at least half its length before the face; 2nd slightly clavate, three and a quarter times the length of the 1st; 3rd almost three-quarters the length of the 2nd; 4th half the length of the 3rd. *Rostrum* reaching to the base of the 1st abdominal segment.

Thorax—*pronotum* short, trapeziform, anterior margin straight; lateral margins slightly convex, widened posteriorly; posterior margin straight across the scutellum, then slightly rounded to the hinder angles. *Elytra* in the ♂ longer than the abdomen. *Wings* without a hook in the cell. *Legs* moderately long; *thighs*, 3rd pair stout; *tibiæ*: 3rd pair slightly concave a little below the base; *tarsi*: 1st joint shortest, 2nd twice the length of the 1st, 3rd about equal to the 2nd.

ALLOCOTUS RUBIDUS (Fieb. M.S.), Puton.

Ann. Soc. Ent. Fr., 5 sér., iv, p. 219, pl. vii, fig. 2 (1874).

Pink or brownish-pink, clothed with semi-erect black hairs intermixed with decumbent, shining, whitish ones. *Elytra* with minute red punctures in which the black hairs are set; *cuneus* (♂) orange-red, clothed with semi-erect black hairs; *membrane* of the ♀ slightly abbreviated.

♂. *Head* after death lurid; in front obtusely triangular. *Crown* convex, with an indistinct transverse channel near the base; distance between the inner margin of the eyes scarcely so great as the length of the head. *Eyes* large, pink or brown. *Antennæ* brownish-yellow. *Rostrum* yellow; apical half of the last joint black.

Thorax—*pronotum* pink or brownish-pink; callosities not prominent, bounded posteriorly by a faint transverse channel; disc flat-convex. *Scutellum* triangular, almost equilateral, flattish-convex, and with the usual transverse channel near the base. *Elytra* pink or brownish-pink clothed with semi-erect black hairs set in minute red punctures, and intermixed with decumbent, shining, whitish ones; *clavus*, after death, frequently somewhat fuscous; *cuneus* longish, orange-red, clothed with semi-erect black hairs; *membrane* fuscous, iridescent; cell

nerves red, after death brownish. *Legs* brownish-pink, after death luteous; *tibiæ* yellowish, with a few fine dark hairs down the outer margin; *tarsi* yellow, apex of the 3rd joint and *claws* black.

♀. Ovale. *Head* more convex than in the ♂, distance between the eyes about equal to the length of the head; transverse channel at the base distinct.

Thorax—*pronotum*: callosities distinct, generally darker than the disc. *Elytra* clothed as in the other sex. *Membrane* slightly paler than in the ♂, and barely reaching to the apex of the abdomen. Remaining characters as in the other sex.

♂, ♀. Length $1\frac{1}{2}$ line.

We have also what we considered to be a *green* form of the foregoing insect, and in this idea we are borne out by Dr. Puton, who, however, had not, until the other day, seen an example. "Curiously enough," as he observes in a letter, the original captor (in France), "M. Bellevoys, of Metz, arrived at the same time as your box, and "brought with him a green example." We subjoin a short diagnosis:

Var. MONCREAFFI.

Green in both sexes and clothed as in *A. rubidus*. *Head* yellow; *pronotum* in front yellow, more or less broadly green posteriorly. *Scutellum* yellow. *Elytra*—*corium* green, clothed as in *rubidus*, but with minute green punctures, in which the black hairs are set; in the ♂, *cuneus* paler than the corium. *Membrane* pale fuscous, iridescent; cell-nerves yellowish or brownish-yellow. All the other characters as in *A. rubidus*.

We have also one fuscous-black example, ♂.

Taken at Lumps' Pond, Portsmouth, by Mr. H. Moncreaff, upon or under *Salicornia radicans* (creeping, jointed glass-wort), from August up to the middle of October. We have named this variety, if variety it be, after its captor, who has added to our fauna so many good things from his locality.

(To be continued).

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

(continued from Vol. x, p. 242.)

DORATURA, J. Sahlberg.

This genus was founded by the above author, in 1871, for the reception of the only two known European species which had been doing duty in genera with which they have but little in common. Only one of these species is as yet known to be British, but I believe the other will be found in Scotland, if not in England also, as its capture is recorded by Flor, Kirschbaum, Thomson, and J. Sahlberg.

Species-1.—*DORATURA STYLATA*, Boh.

Athysanus stylatus, Boh., Handl., p. 31 (1847); Kirschb., *Athys.-Art.*, 14, 18 (1858).

Jassus (Athysanus) stylatus, Flor, Rhyn. Livl., ii, 273, 1 (1861); Marshall, Ent. Mo. Mag., iii, 10, 15 (1866); Kirschb., *Cicad.*, 123, 1 (1868).

Jassus stylatus, Thomson, *Opusc. Ent.*, i, 58, 27 (1870).

Doratura stylata, J. Sahlb., *Not. Fenn.*, part 12, 292, 1 (1871).

Undeveloped form. ♂. In life, greenish-grey, changing, after death, to pale fuscous-yellow. *Head* somewhat deltoid, flattened above, and with a distinct transverse channel in front; sides arcuate; apex slightly raised; posterior margin concave. *Elytra* very short, only covering about one-third of the abdomen; posterior margin rounded.

Head—*crown* with three black spots on the anterior margin, the central one, at the apex, almost square; inner margin of the transverse channel on each side of the centre with a dark brown or black, almost comma-shaped patch; near the posterior margin one or sometimes two small black spots on each side of the centre. *Face* with two more or less irregular, transverse, black streaks, placed, one near the upper margin, the other in a line with the lower margin of the eyes. *Clypeus*: apex generally blackish.

Thorax—*pronotum* with a deep fovea on each side of the centre, in a line with which is a more or less distinct transverse blackish line, appearing as though shining through from beneath: posterior half finely wrinkled transversely. *Scutellum* yellowish or pale fuscous-yellow. *Elytra* very short, only covering about one-third of the abdomen, very finely rugulose, yellowish (after death) or pale fuscous-yellow; claval suture frequently with a narrow, brownish line; within the posterior margin and between the nerves, very narrowly brownish. *Legs* yellow. *Thighs*: first pair at the base broadly black, and with a ring or sometimes only a spot, on each side before the apex, of the same colour; second pair generally with two black rings, one near the base, and the other before the apex; third, with a black longitudinal streak down the middle of the inside. *Tibiae*: inner margin of the first and second pairs generally very narrowly blackish; third, broadly black internally, throughout their whole length; spines on the anterior margin yellow, some of which are placed in a small black fovea; apex narrowly black. *Tarsi* yellow, apex of the first and second joints of the third pair black.

Abdomen above fuscous-yellow with a narrow yellowish dorsal line, frequently enclosed by a row of black spots; sides with two longitudinal rows of black spots; beneath black, posterior margins of the segments, except the two last, which are broadly so, very narrowly yellow, sides of the segments with a large, triangular, yellow spot; last genital segment above and on the sides with a black spot.

Length, $1\frac{1}{2}$ line, barely.

♀. *Head* generally with five black spots on the anterior margin; extremity of the ovipositor strongly stylate, projecting considerably beyond the last genital segment. All the other characters nearly as in the ♂. Length 2 lines.

Not common. It has been taken by Mr. Douglas and myself at Dartford Heath, Seven Oaks, Boxhill, &c., in July and August, by sweeping.

Developed form, unknown to me.

Of the second species, *Doratura homophyla*, Flor, not yet known to occur in Britain, I may add, for assistance in leading to its identity, that it is larger than *D. stylata*, but of the same colour, and can, I may say *only*, be separated by the differences in the genital segments in both cases.

(To be continued).

DIAGNOSTIC CHARACTERS OF UNDESCRIBED *COSSONIDÆ*.

BY T. VERNON WOLLASTON, M.A., F.L.S.

Family *COSSONIDÆ*.

(Sub-Family *PENTARTHRIDES*.)

Genus *PENTARTHURUM*.

Wollaston, Ann. Nat. Hist., xiv, 129 (1854).

PENTARTHURUM SHARPIANUM, *n. sp.*

P. angustum, parallelo-sub-cylindricum, depressiusculum, sub-nitidum, rufo-piceum, elytris sensim pallidioribus; capite valde exserto, oculis prominentibus; prothorace (in ♂ subovali, sed in ♀ paulo magis triangulari) alutaceo, dense et sat profunde punctato, in ♀ tenuiter carinulato, sed in ♂ postice in medio late longitudinaliter sub-impresso; elytris parallelis, piceo-ferrugineis, punctato-striatis, interstitiis transversim rugulosis ac minute uniseriatim punctulatis; antennis pedibusque crassiusculis, pallide rufo-piceis; tarsorum articulo 3^{io} lato et valde profunde bilobo.

Mas, rostro latiore, pone medium gradatim angustato, alutaceo et sat profunde punctato; antennis mox ante medium ejus insertis.

Fem., rostro paulo longiore, gracili, sub-cylindrico, nitido et minutissime punctulato; antennis circa medium ejus insertis.

Long. corp. lin. 2½.

Habitat in Novâ Zealandiâ, ab 'Auckland' a Dom. Lawson missum. Ad describendum communicavit D. Sharp, ejus in honorem nomen triviale dedi.

(*Obs.*—Species inter *Pentarthra* insignis corpore elongato angusto depressiusculo minus nitido, scutello magno, pedibus crassis, tarsorum articulo 3^{io} lato et valde profunde bilobo, necnon rostro secundum sexum conspicue diverso. A *P. longirostri*, in Novâ Zealandiâ degente, differt, inter alia, corpore longiore, angustiore, magis parallelo, magis depresso, et minus nitido; colore, præsertim in elytris, pallidiore; rostro dissimili, minus arcuato, et basi, mox pone oculos, haud a fronte stricturâ diviso; prothorace densius sed minus grosse punctato; necnon tarsis etiam latioribus. Formâ angustatâ parallêlâ corporeque minus nitido etiam *P. angustissimum*, ex insulis Japonicis, aliquo modo simulat; sed corpore majore, pallidiore, scutello multo magis conspicuo, tarsorum articulo 3^{io} multo latiore ac magis bilobo, oculis magis prominentibus, necnon rostri structurâ toto cælo differt.)

The narrow, parallel outline, less shining surface, and rather diluted (or rufescent) hue of this elongate *Pentarthrum* (which is from New Zealand, and has been communicated by Dr. Sharp), in conjunction with the broad and deeply bilobed third joint of its feet and the great sexual dissimilarity in its rostrum (which in the female sex is long, polished, and acicular, but in the male comparatively broad and sculptured, though gradually and conspicuously rounded inwards, or attenuated, behind the middle), will at once separate it from every other species which has hitherto been described. Its scutellum is large and transverse, its legs are somewhat short and thickened, and its rostrum (as in the ordinary members of the genus) is scarcely at all separated from the forehead by a constriction immediately behind the eyes,—which latter structure forms so remarkable a feature in the *P. longirostre*, which occurs likewise in New Zealand.* In the slight sexual dissimilarity of its prothorax (no less than in that of its rostrum) it makes a more decided approach than is usual amongst the *Pentarthra* to certain members of the true *Cossonides*, such as we see in the groups around *Mesites*. I have had much pleasure in naming the species after Dr. Sharp, who has at various times entrusted to me the most interesting consignments of New Zealand Cossonids—received from Auckland by Mr. R. Lawson, of Scarborough.

(Sub-Family COSSONIDES.)

Genus *BRACHYSCAPUS* (?).

Wollaston, Trans. Ent. Soc. Lond., 463 (1873).

BRACHYSCAPUS? *ANGOLENSIS*, *n. sp.*

B. oblongus, convexiusculus, nitidiusculus, calvus, ater; rostro (breviusculo, crassiusculo) nitido, leviter punctulato, oculis magnis sed demissis, supra haud latissime separatis; prothrace (clytris conspicue angustiore) sub-cylindrico-ovali, grosse et profunde punctato, pone apicem fortiter constricto; scutello mango; clytris (ad basin conspicue trisinuatis) profunde et grossissime sulcato-punctatis (punctis maximis), interstitiis convexis et fere haud punctulatis; antennis (circa medium rostri insertis) tarsisque (longiusculis, graciliusculis) rufo-piceis. Subtus (præsertim in sternis) grosse et valde profunde punctatus.

Long. corp. lin. $2\frac{1}{2}$.

Habitat Africam occidentalem, ab Angola missus. In coll. D. A. Murray.

Although its scape is less shortened than that of the South African *B. crassirostris*, and its rostrum is both less thickened and less triangular, I, nevertheless, am inclined to suspect that the somewhat *Phlæophagus*-like Angolan insect, for which the present species has

* An extensive series of the *P. longirostre* which has lately been communicated by Dr. Sharp, enables me to correct the diagnosis of that species as regards size,—which, instead of being from " $1\frac{1}{8}$ to 2 lines," may be stated to be from $1\frac{1}{2}$ to 2 lines.—T. V. W.

been proposed, and which is from the collection of Mr. Andrew Murray, is, on the whole, better referred, perhaps, to my genus *Brachyscapus* than to any other of the numerous forms of the subfamily *Cossonides*. For although it is not altogether impossible that it may eventually be found to constitute the type of a closely-allied group, it has, nevertheless, so much in common with *Brachyscapus*, not merely in its intensely black, deeply sculptured surface, and rather narrowed, oval prothorax, but likewise in its comparatively large scutellum, and the structure of its exceedingly sunken and not very widely separated eyes, that I think it is wiser (for at all events the present) to regard it as a member of that genus than to establish a separate one for its reception. Its *primâ facie* appearance is very much that of a large *Phlæophagus*; but, apart from all other characters, its conspicuously developed scutellum will at once distinguish it from that genus.

Teignmouth: October, 1874.

DESCRIPTION OF A NEW JAPANESE *LYCOPERDINA*.

BY THE REV. H. S. GORHAM.

LYCOPERDINA CASTANEIPENNIS, *sp. n.*

♀. *Ovata, picea, nitida, parcius sat fortiter punctata, thorace elytrisque convexioribus, his rufo-castaneis.* Long. lin. 3.

Allied to *L. dux*, Gorh., distinguished by its larger and more convex thorax, which is especially more enlarged in front; the elytra are also proportionally wider in the middle and more convex. Head and thorax pitchy, very feebly but visibly punctured, the latter a little longer than wide, with the sides sinuate, hind angles right; basal sulci longer than in *L. dux*, slightly arcuate, and well marked, as well as the transverse basal impression. Elytra short oval, their sides more rounded than in *L. dux*, of a uniform chestnut-red, scarcely lighter at the apex. Legs and antennæ pitchy-black, tarsi and extreme apex of the latter rufous.

Hab., Japan.

Two specimens, presenting the above differences from *L. dux*, are from the collection of Mr. G. Lewis. The species has more of the general appearance of the North American *L. ferruginea*, but is easily separated by its darker antennæ, legs, head, and thorax. They are both females.

Shipley: November, 1874.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from p. 134).

In working out the very interesting and difficult genus *Eupæcilia* I have derived much assistance from the valuable paper by my esteemed friend Mr. McLachlan in the Ent. Annual for 1869, and shall confine myself to additional information received, and corrections made, since it was published.

Eupæcilia maculosana, Haw.—Prof. Zeller tells me that he cannot see that this species differs, except in size, from *purgatana*, Tr. Wocke, however, who doubtless knows our insect, gives them as distinct.

Eupæcilia atricapitana, Steph.—Common in Yorkshire, and not scarce in Norfolk, and probably to be found in all the chalk districts of the East of England, among rag-weed (*Senecio jacobæa*), from the blossoms of which it has been reared by Mr. Howard Vaughan.

Eupæcilia dubitana, Hübn.—Stephens was correct in saying that this species occurs in Scotland. I have received specimens from my friend Mr. Chapman, of Glasgow, which were taken on the banks of the Forth and Clyde canal. It has also been taken this summer in Kent, within a few miles of London. It is so plentiful a species on the Continent, that its excessively local distribution in this country is rather remarkable. Some of its food-plants are mentioned by Mr. McLachlan, to which I may add *Solidago virgaurea*.

Eupæcilia albicapitana, Cooke.—Described by Mr. Nicholas Cooke in the Zoologist (p. 7800), and recorded without description in the Entom. Annual for 1862 (p. 111). Mr. McLachlan, however, sufficiently describes it, and points out its distinctive characters in his paper (E. A., 1869, p. 86).

It is, however, identical with *pallidana*, Zell. (Isis, 1847), as specimens sent me by him conclusively prove, and his name, having priority, must be adopted. This correction has already been made by Mr. Doubleday, in the latest supplement to his list.

Posterana, Zell., to which Mr. McLachlan refers is distinct from this, having longer fore-wings with dilated rounded apex, tinged with purplish. To this species, which has not yet been detected in this country, I shall have occasion again to refer.

Pallidana, besides the original habitat on the Irish coast, is common in the Isle of Man, whence I have received fine specimens from the Rev. R. P. Murray. In the collection of the Rev. Henry Burney

are specimens most beautifully tinged with pink, but not otherwise differing from the ordinary form. Their locality seems uncertain, but it is probable that they were taken on the coast of North Wales.

Eupæcilia sodaliana, Haw.? Wilk.—Haworth's description of this species is hardly sufficient to distinguish it from *carduana*, Zell., or even (as he says nothing of the colour of the head and thorax) from *atricapitana*. Stephens' description, where not copied from Haworth, is worse, and Wood's figure is anything but characteristic, being, to all appearance, drawn from a damaged specimen in Haworth's collection (still existing in the British Museum), in which the peculiar dorsal blotch is nearly obliterated. Consequently, Dr. Wocke quotes *sodaliana*, Steph. (he does not refer to Haworth), without question, as a synonym of *hybridella*, Hübn.

I think, therefore, that it will be better to place ourselves in accord with continental entomologists by adopting *amandana*, H.-S., for this species, since it certainly has priority to Wilkinson's really excellent description.

Eupæcilia carduana, Zell.—Prof. Zeller, with Heinemann, thinks it doubtful whether Wocke is correct in referring this species to *hybridella*, Hübn., while Guenée says that Hübner's figure correctly represents *bred* specimens. Hence he appears to know its food-plant, but here arises a difficulty. M. Jourdheuille in his Calendar states that its larva feeds in thistle heads, assuming the pupa state within them; but examples of this thistle-feeding species, sent by M. Ragonot from Paris, prove to be *posterana*, Z., and not *carduana*, from which they are readily distinguished by the straighter costa, dilated apex, and whitish hind-wings. *Carduana* has the costa rounded, and the hind-wings dark grey, but a reference to Mr. Stainton's copy of Hübner confirms Dr. Wocke in its identity with *hybridella* (Hübn., Tin., 351), and it will, therefore, be safe to follow Mr. Doubleday in adopting this name.

Eupæcilia nana, Haw.—By some inadvertence this species occurs twice in Dr. Wocke's Catalogue: first, at No. 880, as *nana*, Haw., Steph., and Wood, and again, No. 898, as *ambiguana*, Fröl., with *nana*, Wilk., Steph. Manual, as a synonym. But as Wilkinson and Stainton refer to the same species as Haworth, his name, having priority over that of Frölich, must stand.

The larva is said to feed in birch catkins.

Eupæcilia ambiguella, Hübn.—With Mr. McLachlan, I have felt great doubt whether our wood-frequenting insect could be identical

with that which causes so much damage on the continent by feeding on the flower buds of the vine, but Prof. Zeller assures me that they are identical, and that it occurs also in woods in Germany, where there is no vine.

I much regret that I have had no opportunity of trying again to rear what I believe to be the larva of this species in berries of *Rhamnus frangula* (E. M. M., vol. vi, p. 113), among which plant the insect always occurred in the Haslemere district.

Eupæcilia curvistrigana, Wilk.—Undoubtedly distinct from *angustana*, having broader fore-wings. Prof. Zeller tells me that he sees no character to distinguish it from his *gilvicomana*, with which *flaviscapulana*, H.-S., appears to be identical. But as I have been unable to send him more than one or two specimens, from which he could not give a decided opinion, and he has not been able to send me *gilvicomana*, and as, moreover, I do not recognize our insect in Herrich-Schäffer's figure of *flaviscapulana*, it will not be advisable to alter the name without further information.

Eupæcilia angustana, Hübner.—Dr. Wocke substitutes *cruentana*, Fröl., doubting whether Hübner's fig. 74 refers to this species. I think, however, that there is little doubt about this, and see no reason for making the alteration.

Rössler's observation respecting one of the food-plants of this species is confirmed by the Rev. Henry Burney, who writes: "I bred several specimens last July from larvæ found here on common yarrow (*Achillea millefolium*) growing by the side of a corn-field, and a long way from any heath. The larvæ feed on the seeds of the yarrow, fastening the dead flowers together in little bunches or knots. They are thick, short, and stumpy little things, of a flesh or reddish-white colour, and are very active and apt to wriggle out and drop on the ground when one attempts to cut off the flower-head."

There is something unsatisfactory about this species in the fact that the June brood occurs in woods, fields, and marshes, as well as heaths, and is richly coloured and large, but not very abundant, while the August brood, which is smaller and paler, occurs in swarms, but almost exclusively on heaths.

Eupæcilia notulana, Zell.—I think it most likely that this species, like so many of its congeners, feeds on the flowers or seeds of *Mentha*, and only enters the stems to spin up. It also feeds on *Inula dysenterica*.

Eupæcilia griseana, Haw.—This is a subject not to be lightly handled! It has cost me many hours of careful study, comparison, and consideration for years past, and I have arrived at no very satisfactory conclusion yet—nor has anybody else.

To begin with, Haworth's description is not satisfactory, not recognizable, in fact, I may go further and say, incomprehensible and untranslatable. He compares it with *roseana*, but without at all making his meaning clearer, and only gives one a faint idea that he may have had *notulana*, Zell., before him. Stephens copies his diagnosis, but adds a description, to which I shall have to refer presently. Wood figures *subroseana*, Haw., under this name. Mr. Doubleday, in his list, sunk it into a doubtful synonym of *udana*, Gn., and Wocke (without the query) restored it as the prior name, making *udana* the synonym. But *udana* is not grey, and the description does not apply to it at all. Mr. McLachlan passes *griseana* with very short notice, but makes it synonymous with *Manniana*, F. v. R.—a yellow species—as well as with *udana*, Gn. The consequence is that at least half-a-dozen different species have been sent to me as *griseana*, Haw., and I had come to the conclusion that the name must be discarded altogether, when, in examining the collection of *Tortrices* in the British Museum, I came upon eight specimens, in fine condition, and labelled from Stephens's collection, which stood under the name of *griseana*, and are not, in my judgment, referable to any other species with which I am acquainted. These specimens have the fore-wings brownish-grey, with a dark brown central fascia attenuated towards the dorsal margin, and a brown streak or narrow fascia before the apex. Cilia ochreous with brown spots. Hind-wings fuscous. They agree so closely with Stephens's *English* description, that I see no reason why the name should not be retained for them. The locality from which they were obtained is unknown, and I am not aware of the existence of any similar specimens in any private collection. This species is larger than *Vectisana*, with more rounded fore-wings, and seems intermediate between it and *rupicola*.

Eupæcilia udana, Gn.—This is the species from which Messrs. Stainton and Wilkinson's descriptions of *griseana* were taken. Guenée's description is tolerably accurate (but the glossy shades seem to fade readily, and leave it a comparatively dull ochreous).

"Anterior wings glossy, variegated with dark olive, ochreous, and "silvery markings, a darker central fascia not very clearly defined, in "which is a blackish spot. Apex of the wings ochreous and marked "with brown. Posterior wings greyish-fuscous. Head and palpi "yellow."

"It flies in marshy meadows among *Carices* in August" (Gn. Ind., 61). It may be best distinguished from its congeners by its mottled ochreous ground colour and entire dark central fascia, broadest in the middle, with a black spot at its hinder edge.

It has been taken rather commonly near London, by Messrs. McLachlan, Machin, and others, among *Alisma plantago*, upon which plant it is said, by Heinemann and Zeller, to feed. Mr. Machin now informs me that he has reared it this season from larvæ feeding in the stems of *Alisma* in the Hackney Marshes. It also occurs more rarely in the Norfolk fens.

Although Wilkinson's description of *griseana* seems to have been taken from this insect, his observations upon it are most puzzling, since it is *not* very similar to *Vectisana*, nor does it at all resemble his *subroseana* (*ciliella*, Hübn.). Moreover, the species which has been reared from *Inula dysenterica* is not this, but *notulana*, Z., as proved by specimens sent me by Mr. Doubleday. I suspect, however, that it is to this species that M. Jourdheuille refers in his Calendar, when he gives *Alisma plantago* as the food-plant of *Mussehliana* and of *notulana*.

(To be continued.)

Note on a species of Apion new to the British list.—There are two examples (♂ and ♀) of an *Apion* set aside in Dr. J. A. Power's collection, taken by himself in 1867, at Hastings, which differ considerably from any recorded British species, and are, I think (in spite of a discrepancy in measurement), to be referred to *A. opeticum*, Bach (Wencker, Mon. des Apionides, p. 10). That species is described as differing from *pomonæ* in its size being often smaller (the smallest being 2½ mill.), its invariably black colour, its rostrum being more abruptly contracted a little after the middle, and less dilated at the base in both sexes, and its antennal club being pointed-ovoid,—the club being more elongate in *pomonæ*. Now, Dr. Power's insects agree well enough with *opeticum* as thus characterized (the lesser basal dilatation of the rostrum being best seen laterally), except that they barely exceed two mill. in length (*rostrum excluso*). They have, as should *opeticum*, entirely the facies of *subulatum*, but with the rostrum shorter, stouter at the base, and more abruptly contracted. They are of the same size as small *cracæ*, but less pubescent, especially in front, with only the base of the first antennal joint testaceous, &c. According to Wencker, *A. opeticum* lives on *Orobis vernus*.—E. C. RYE, Parkfield, Putney, S.W.: November, 1874.

Observations on a viviparous Chrysomela.—With reference to the note on this subject by M. Bleuze, a translation of which appeared in our last number (*ante* p. 135), M. Valéry Mayet has shewn in the *Pet. Nouv. Entomologiques* for 1st November, 1874, that the fact is not new, it having been already recorded by M. Perroud in the *Annales de la Soc. Linnéenne de Lyon* for 1855. This article is entitled "Notice sur la viviparité ou l'ovoviviparité des *Oreina speciosa* et *superba*," pp. 402—406; and, according to M. Mayet, *Chrysomela* (or *Oreina*) *venusta* may be only a variety

of *speciosa*. It is possible the habit may be the rule, and not the exception, in species of *Oreina*; any way the fact is in the highest degree interesting, and although M. Bleuze's discovery is not new, it is a valuable confirmation of M. Perroud's observations.—EDS.

Hybrids between Smerinthus ocellatus and S. populi.—When sending my note a month or two ago (*ante* p. 116) on the brood of the hybrid between *Smerinthus ocellatus* and *populi*, reared here, I had not noticed an interesting fact, since pointed out to me by Mr. Joseph Sidebotham of Manchester, namely, that every specimen had *male* antennæ. Since then I have also heard of several other broods that have been reared at different times, but in no instance has a specimen having *female* antennæ been noticed. I suppose there is little doubt that all the specimens were neuters; but it would be interesting to learn if all hybrids between these or other species take this form. In all the instances I have heard of, the parents were ♂ *ocellatus* and ♀ *populi*.—GEO. T. PORRITT, Huddersfield: November 12th, 1874.

Deiopeia pulchella at Folkestone.—On the 28th ultimo, whilst shooting near Folkestone, I disturbed a specimen of *D. pulchella* in a field of mustard, and after a short chase succeeded in pinning it. It is a female specimen in fine condition. The place where I took it is only about three hundred yards from the spot where my brother, Mr. T. H. Briggs, took a specimen in 1869 (*E. M. M.*, vol. vi, p. 141), and, as in that case, a field of swedes and white turnips adjoined. I have seen three other specimens taken in the neighbourhood, one of which, captured in the Warren, I have since secured, and it is now in the cabinet of Mr. Howard Vaughan.—C. A. BRIGGS, 55, Lincoln's Inn Fields: 12th November, 1874.

Aplecta occulta bred in October.—I have recorded in the current number of the Magazine (*ante* p. 139) that larvæ of this species, hatched in the first week of August, had fed up rapidly and assumed the pupa state. I bred the first moth on the 20th of last month, and have had several more out since, at intervals of a day or two. They are mostly very fine examples of the black Rannoch form, and are, I think, on the average, quite as dark as those taken there at sugar. The larvæ were fed almost entirely on *Polygonum aviculare*. No means of forcing were used with the pupæ to accelerate the appearance of the moths.—J. B. BLACKBURN, Grassmeade, Southfields, Wandsworth, S.W.: 10th November, 1874.

Depressaria Yeatiana bred.—Dr. Jordan having mentioned incidentally that he had bred this insect, I wrote for some details of the fact, in reply to which he wrote me as follows: "Three or four years ago, in July, a larva was brought to me, 'at Teignmouth, by my brother, on a plant of *Senebiera* (*Coronopus*) *didyma*, which 'came out as *Depressaria Yeatiana*. The *Senebiera* was a weed in a large bed of 'carrots, and the deduction at which I jumped was that the larva, which was ready 'to spin, fed upon carrot, and, moreover, as garden carrots are not allowed to flower, 'that it probably fed on the leaves.

"The larva was very remarkable from its black, shining acute head, and I should 'know it again; its body was entirely green, I suppose the spots had faded because 'it was quite ready to spin up; this it did at once in a pill-box, and the moth came 'out in about three weeks. I have the specimen now."

I hope this information may enable those who are in the habit of taking the imago to meet with the larva.—H. T. STANTON, Mountsfield, Lewisham, S.E. November 16th, 1874.

Rare Tortricina.—Since my return from Scotland, I find among my *Tortrices* the following scarce species: *Penthina praelongana* and *Staintoniana*, *Mixodia rubiginosana* (*Bouchardana*), *Asthenia cosmophorana* and *cognatana*, also *Dicrorampha herbosana*. For the identification of some of these and several others I am indebted to Messrs. C. S. Gregson and C. G. Barrett.—JOHN T. CARRINGTON, Egremont: November, 1874.

Notes of Lepidoptera from South Wales.—In the May number of the Magazine I had the pleasure of noticing the capture of *Xylina conformis* here. I have now to note the capture of *Sterrhia sacraria*—a female who had deposited her ova, having come to light on the 12th inst.

Among the more interesting species of *Lepidoptera* which have shown up this year are *Agrotis saucia* (a fine variety); *Hoporina croceago*; *Epunda nigra*, a fine series in the second week of September; *Plusia orichalcea*, two; *P. festuæ*, several; *Macaria alternaria*, two.

I have scarcely seen one *Sphinx* the whole summer through.—JOHN T. D. LLEWELYN, Ynisgerwn, Neath: October 17th, 1874.

Notes on larva-collecting, &c., in the New Forest.—As there appears to be some doubt as to the natural food-plants of the larva of *Acronycta alni*, perhaps the following may be of interest.

During the last week in July, while on a collecting excursion in the New Forest, my friend, Mr. Ross of Bathampton, beat a larva of this insect either off oak or beech—I think the former. Seeing in Mr. Newman's "British Moths" that the natural food-plant was doubtful, he offered it several different plants to choose from. It attached itself to the beech and sawow, on both of which I myself saw it feeding. He afterwards found another and smaller larva hanging by a thread to a birch leaf—but this was injured and did not live long.

On the 1st of August I joined Mr. Ross at Lyndhurst, and on the 2nd, whilst beating for larvæ in a wood known as "Park Hill," chiefly consisting of beech trees, I beat a half-fed larva of this species off the bough of a beech-tree. It had not then changed its last skin, and was very peculiar in appearance, being mottled with dirty white and grey. It possessed clubbed hairs like those of the adult larva on the second and twelfth segments only—they being replaced on the other segments by shorter pointed and somewhat spine-like hairs. My friend, Mr. Bartlett, having kindly undertaken to take charge of my larvæ, this was despatched to him along with the others, and beech not being obtainable in his neighbourhood, he supplied it with sawow, on which it fed up well, and eventually spun its cocoon in a piece of cork.

On the 16th of August, the last day of my stay at Lyndhurst, I beat a larva of *Stauropus fagi*. Mr. Ross also took a larva of this species.

We found larvæ of *Acronycta leporina* not uncommon on the smaller birches growing in heathy places. In one day I succeeded in beating eight (Mr. Ross found them more common at the beginning of September). It is, I think, somewhat remarkable that it was of no use to beat the fine old birch-trees which abound in many parts of the forest. I do not think I obtained a single larva, either rare or common, off them, although on the birch-bushes and shoots larvæ were common. Besides the above, we took the following larvæ:—*Lithosia aureola*, rather common on oak and beech; *Liparis monacha*, one, taken the second week in August (surely very

late ?), from which I bred a very fine ♀; *Eurymene dolobraria*, common in one inclosure, on oak, elsewhere rare; *Ennomos tiliaria*, two (I also beat one imago, a ♂, out of the bough of a birch); *E. erosaria*, two; *Boarmia roboraria*, by no means uncommon in the inclosure above-mentioned, not so common in other localities; *B. consortaria*, not rare: one ♂ imago emerged at the end of September; *Cidaria psittacata*, a few on oak; *Dicranura furcula*, two; *Notodonta dictæoides*, very scarce: I only took two, both ichneumoned; *N. dromedarius*, not common; *N. Chaonia* and *dodonæa* (the latter much scarcer than it was last season); *Diphthera Orion*. The larvæ of this beautiful *Noctua* were not nearly so common as the abundance of the imago during June led us to hope they would be. Up to the 15th of August I had only taken about a dozen. I then discovered the inclosure named above, and here they were not rare, as I beat twenty in two days (sixteen on the last day—the largest number, I believe, taken in one day by any collector in the forest). We also took many other species, some of which we do not yet know. As to the imagos, I captured very few worth naming, as the weather was very bad, and the insects scarce, I did not do much day-work, devoting myself almost entirely to larva-collecting; indeed, besides the *E. tiliaria* already recorded, I only captured one fine ♀ *Demas coryli* (which laid me a large batch of ova), one ♀ *Platypteryx lacertula* (which also favoured me with eggs), and one *P. unguicula*. Sugaring was not much more productive. The only captures by its means worth noticing were:—*Cidaria immanata* (a nice series); *Cerigo Cytherea* (not so common as usual); *Agrotis puta*, two; *Tryphæna interjecta*, two; and *Noctua rhomboidea* (common, but mostly worn. I obtained a number of ova from some injured females).

Catocala promissa and *C. sponsa* were not common. Of the latter I managed, after much trouble, to obtain a few ova. I kept the ♀ for a week before she began to lay, and on opening her body after death discovered a number of ova still in the ovary.—B. LOCKYER, Euston Road, N.W.: October 12th, 1874.

An entomological scrap.—To-day, while seated in one of the city dining-rooms, I got into conversation with my *vis-à-vis*, a middle-aged gentleman, apparently very intelligent and of good education. Suddenly his attention was attracted by several lively examples of the little House-Ant (*Diplorhoptrum domesticum*) running about on the table-cloth. He asked me what they were. I replied "Ants." The gentleman considered for a moment, and then made the profound remark: "*I should have thought they would have done having young ones at this time of year.*" Could anything demonstrate more forcibly the necessity for elementary Natural History forming part of our educational system?—R. McLACHLAN, Lewisham: 18th Nov., 1874.

Review.

INSECTS ABROAD; being a popular account of Foreign Insects, their structure, habits, and transformations. By the Rev. J. G. WOOD. 8vo, pp. 1—772. London: Longmans, Green, and Co., 1874.

This is a companion volume to "Insects at Home," by the same writer. Mr. Wood is well known as a prolific and successful book-maker in the department of Natural History, and this work is not inferior to any of his previous ones, and a marvel of cheapness. Those who merely desire a pretty and interesting volume for the drawing-room table, will find this answer their purpose, in spite of the letter-press (where not avowedly or obviously copied) consisting mostly of vague colour-descriptions and useless discussions of the meanings of the mere names of the species

figured. The innumerable wood-cuts (from drawings by Mr. E. A. Smith) are mostly clever, but sometimes show too much straining for effect, and an excessive foreshortening. Of course, absolute scientific accuracy is hardly to be expected. Perhaps the most unpardonable *lapsus* is to be found at p. 371, where a magnificent species of the curious Neuropterous genus *Nemoptera* is figured as an *Ascalaphus* (!), and the insect represented as hawking, dragon-fly-like, over the surface of a pool, equally out of place for either a *Nemoptera* or an *Ascalaphus*; and another unhappy disregard of habits is to be seen on pl. xviii, where one of the *Cicadæ* has its rostrum applied, humming-bird-like, to the flower of an orchid. Mr. Wood has gone out of his way in naming 'new species' in several orders, apparently from the collections of the British Museum (e. g., *Forficula Petropolis* [!], p. 279),—a process not likely to add to the prestige of that Institution, and implying a poor return by the author for the (acknowledged) civility of its officers, who will, moreover, scarcely approve of his publication of their unguarded conversational remarks.

Obituary.

Henry Dorville. Many of the readers of this Magazine will be sorry to learn that this gentleman died on the 30th October, for they will mourn the loss of a valued correspondent. He did not turn his attention to entomology until quite late in life, though when young he had the advantage of knowing intimately several eminent naturalists, such as Dr. Leach, &c. He was born in Devonshire in 1798, and at not much more than thirteen years of age joined the navy, and was serving as a midshipman on board the "Bellerophon" when that ship brought Bonaparte to England. Not long after this, however, he was attacked by a constitutional malady, which obliged him to relinquish his profession, and from which he was never afterwards quite free. In 1819 he was appointed Vice-Consul at Venice under Hoppner, and in that office gained by his courtesy and integrity the friendship of many of his countrymen travelling or residing in Italy. Lord Byron, then at Venice, entrusted him for a time with the care of his little daughter 'Allegra,' and in Moore's edition of the poet's works, Mr. Dorville's name is often mentioned in letters to Hoppner.

In 1823 his weak state of health compelled him to give up his appointment, and for the next ten years he moved about, sometimes in England, sometimes on the Continent, being part of the time at Rome, where he again fell in with Leach, who was there with his sister, and with him used to visit Lucien Bonaparte; he had not, however, in those days sufficient knowledge of natural history to take much interest in their pursuits; only he remembered that Leach was engaged in a classification of insects by their mouths, and seemed perfectly rational except on one or two points, the mention of which would at once throw him off his balance.

In 1833 Mr. Dorville finally came to England, and soon after settled at Alphington near Exeter, and there the latter half of his life was passed as free from change as the first half had been full of it. His favourite pursuit here was at first gardening, but in 1856 symptoms of heart disease beginning to show themselves, and butterflies happening to swarm on his flowers, he took the advice of a friend, and exchanged the more severe exertion of gardening for collecting *Lepidoptera*, and the interest excited by the new pursuit seemed to give him, then close on sixty years of age, a new lease of life. Being unable to endure much fatigue, he could seldom make excursions in search of the various species in their native habitats, so he set himself to entice them to come to him instead. With this view he planted his garden with

attractive flowers, and for years together spread sugar on his apple trees, night after night, in winter as well as summer, until at last his acre and a-half of garden ground, though from its situation devoid of unusual advantages, seemed to become a very rendezvous of moths, especially among the *Noctuæ*, and if there were any unusual species about, they generally paid him a visit. During the last year of his life he had commenced to draw up an analyzed list of the species he had thus captured or observed, but, unfortunately, he was not able to complete it; this is to be regretted, as such a list, compiled from nearly twenty years steady, continuous observation in one spot, would have been valuable in throwing light on the periodical abundance and scarcity of species, and the influence of successive seasons of varied character.

To Mr. Dorville's active and temperate habits it must be ascribed, that though never free from severe pain for many days together, his sight was so clear, and his hand so steady, that he could pin and set out a *Micro* almost to the last; and to the very last his mind retained all the freshness of youth, and he felt and showed a keen interest in all the questions of the day. Those who knew him at all, whether from personal intercourse or only from correspondence, were struck not only by the perfect straightforwardness and sincerity of his character, and his detestation of everything false and mean, but also with his kindliness and liberality, and, in the best sense of the word, could heartily endorse Lord Byron's eulogy of him, "Dorville is" (alas! now, was) "a good fellow."

His collection of British *Lepidoptera* has been given to the Albert Museum at Exeter, and to the Linnean Society some unpublished MSS. of Col. Montagu, which were in his possession, with the original drawings, from which the illustrations of the 'Ornithological Dictionary,' and the 'Testacea Britannica,' were made. He was a member of the Entomological Society of London since 1865.—J. H.

ENTOMOLOGICAL SOCIETY OF LONDON: *November 2nd, 1874.*—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Mr. S. Stevens exhibited three specimens of *Deiopeia pulchella* from Arundel and Deal, and a *Noctua* from Dover that he had not been able to identify.

Prof. Westwood remarked that Brigadier-General Harsey used to find the larvæ of *D. pulchella* destructive to his gardens in various parts of India. He also stated that from the pupæ of *Pronuba yuccasella*, sent to him by Mr. Riley, the moths had continued to emerge for three months. He further remarked that he had lately seen the collection of the late Dr. Herrich-Schäffer, which was not in good order, though the *Micro-Lepidoptera* formerly belonging to Fischer von Röslerstamm were in good condition. At Geneva he had visited the New Museum built in the old moat of the city, and it suffered in consequence from damp, but the *Coleoptera* formerly forming the collection of M. Melly were upstairs and in good order.

Mr. Bird exhibited several rare species of British *Lepidoptera*, including *Sesia culiciformis* with white bands, *Limacodes asellus*, *Nola albulalis*, *Nonagria brevilinea* from Horning, and *Pterophorus rhododactylus*, bred.

Mr. Weir exhibited *Mantis religiosa* and egg-cases found by him at Meran in the Tyrol.

Mr. McLachlan exhibited a printer's block (such as is used for printing posters) attacked by *Anobium*, and he was informed that the attacks of the insect were causing serious damage to the stock of similar blocks. The wood was believed to be pear-tree. He had recommended soaking them in a solution of carbolic acid in water.

Dr. Sharp communicated "Descriptions of new genera and species of *Pselaphidæ* and *Scydmanidæ* from Australia and New Zealand." Three species pertained to the former group, forty-one to the latter. From Australia there were twenty-six species of *Pselaphidæ*, from New Zealand fifteen. Dr. Sharp commented upon the New Zealand Fauna with regard to the prospect of its apparent extinction.

A paper was communicated by Mr. Darwin on the larvæ of *Papilio Nireus*, and especially on the colour of the pupa in connection with that of the surroundings of its place of attachment, according to the observations of Mrs. Barber in South Africa (accompanied by explanatory figures), who hinted that there might be natural photographic influences at work. Mr. Meldola stated that no known substance retained, permanently, the colour reflected on it by adjacent objects; and in reply to remarks made by Mr. McLachlan on the fact that flower-feeding larvæ often assume (in the same species) the colour of their food, said that this might, perhaps, be caused by the colouring matter of the flower being assimilated in an unaltered condition by the larvæ.

Mr. A. O. Ward communicated notes on a singular spider's nest found by his father at Poissy on the Seine; he described it as pertaining to a spider that made a symmetrical web. Mr. C. O. Waterhouse, to whom he had sent it, made a section and drawing of it, and found it to contain much sand mixed with the ordinary web; this sand, it was suggested, might possibly serve as ballast.

Mr. Butler read "Descriptions of three new species and a new genus of Diurnal *Lepidoptera* from the collection of Mr. Swanzy;" these were from Whydah, West Africa.

Mr. Kirby communicated a review of Boisduval's "Monographie des Agaris-tidées," published in the *Revue et Magasin de Zoologie*, 1874, pp. 26—110.

The Rev. R. P. Murray read "Descriptions of some new species of butterflies belonging to the genus *Lycæna*," and commented upon the value of the generic characters assigned to insects of this group.

Mr. C. O. Waterhouse read "Notes on Australian *Coleoptera*, with descriptions of new species."

HAGGERSTON ENTOMOLOGICAL SOCIETY.—The Seventh Annual Exhibition was held at the Rooms, 10, Brownlow Street, Dalston, on the evenings of November 12th and 13th. Among the rarer species exhibited were the following:—*Ophiodes lunaris*; *Dianthæcia albimacula* from Folkestone; *Leucania vitellina*, taken at Glynde, near Lewes, September 30th, 1874; *Xylina conformis*, bred; hybrids between *Smerinthus ocellatus* and *populi*; *Catocala fraxini*; *Lythra purpuraria*; *Madopa salicalis*; *Sophronia emortualis*; *Diasemia literalis*; *Dasydia obfuscata*; *Coremia munitata*; *Agrotis cinerea*; *Mellisoblaptes cephalonica*; *Myelois cinerosella*; *Scoparia decrepitalis*; *Hyphenodes costæstrigalis*, &c. Mr. Eedle also exhibited a new species of *Coleophora* with the larva-case.

Some fine varieties of the following species were shown:—*Vanessa urtica*; *Arctia caxa*; *Scotosia certata*, light, with a dark band; *Cidaria immanata*; *Mixodia Schulziana*; *Melanthia rubiginata*; *Anthocharis cardamines* with the fore-wings only, and those of a peculiar shape; and last, but by no means least in importance, a specimen taken by Mr. Macqueen at light in the New Forest, the specific identity of which was doubtful, though the majority considered it to be *Melanippe unangulata*.

The following were well represented:—*Cucullia gnaphalii*, *Leucania albipuncta*, *Erastria venustula*, *Spilodes palealis*, *Penthina Staintoniana*, *Sericoris irriguana*, *Asthenia cosmophorana*, &c.

Five microscopes were placed in one of the rooms, and were a constant source of amusement and instruction to many of the visitors.—HENRY BARTLETT, Secretary.

DESCRIPTIONS OF SIX NEW SPECIES OF DIURNAL *LEPIDOPTERA*
IN THE COLLECTION OF THE BRITISH MUSEUM.

BY A. G. BUTLER, F.L.S., F.Z.S.

Genus *DANAIS*.

The following species, although perfectly constant, and as well marked as any of the insects in the green-spotted group, have been hitherto overlooked by Lepidopterists.

DANAIS SEPTENTRIONIS, *n. sp.*

Danais limniacæ, Butler (*nec* Cramer), P.Z.S., p. 51, n. 34 (1866).

Danais hamata, Butler (*nec* McLeay), P.Z.S., p. 725, n. 3 (1870).

Allied to *D. hamata*, of McLeay, but constantly much larger, the primaries above with the spots on the disc smaller; secondaries olive-brown (instead of chocolate-brown); the streaks beyond the cell, between the sub-costal and radial nervures, narrower, longer, and not notched externally; the brown patch in the cell broader (frequently reaching to the radial nervure without a notch), sub-marginal spots more elongated: primaries below paler than in *D. hamata*, secondaries more cupreous in tint; expanse of wings, 4 inches 5 lines.

India, Nepal, Penang.

B. M.

There can be no doubt that this is the Indian representative of the Australian species, *D. hamata*, McLeay (*D. australis*, Bdv.); it is, however, remarkably constant in its characters, although I believe its range is almost the same as that of *D. limniacæ*. I have, from time to time, seen a great many examples, but have never seen any variation.

DANAIS MICROSTICTA, *n. sp.*

♂. *Danais limniacæ*, var., Butler, P.Z.S., p. 51, n. 34 (1866).

Allied to the preceding species, but the primaries narrower; all the spots on the wings very much smaller, all the streaks much narrower; anal exsertile tuft ochreous; expanse of wings, 4 inches 4 lines.

Borneo (*Stevens*).

B. M.

I have seen several examples of this species, although we have only one specimen in the British Museum.

DANAIS LEUCOPTERA, *n. sp.*

Allied to *D. hamata*, slightly larger; the discal areas from just beyond the discoidal cells decidedly paler (luteous in the secondaries of the female); all the spots and streaks narrower, and consequently more widely separated, and paler in tint; wings below (particularly in the female) altogether redder in tint; expanse of wings, 3 inches 11 lines.

♂ ♀. Dorey (*Wallaoe*).

B. M.

In some respects this species is more like *D. obscurata* than *D. hamata*.

DANAIS EXPROMPTA, *n. sp.*

Allied to *D. similis*, much smaller, the pale spots and streaks broader at base of wings, and in the series bounding the cell of secondaries; the second and third spots of the postcellular series in primaries considerably smaller; the long cuneiform spot of the outer discal series nearer to apical margin; wings below altogether paler and less coppery in tint; expanse of wings, 3 inches 2 lines.

Ceylon (*Wenham*).

B. M.

DANAIS VULGARIS, *n. sp.*

Danais melissa, Doubleday (*nec* Cramer), List Lep. Brit. Mus., 1, p. 49; Gen. Diurn. Lep., p. 92, n. 28.

Allied to *D. similis*, altogether smaller, with all the spots paler and smaller, and all the streaks narrower; the second and third spots of the postcellular series smaller; expanse of wings, 3 inches 3 lines.

Nepal, Bengal, Singapore, Borneo.

B. M.

Genus PANOPEA.

PANOPEA PROTRACTA, *n. sp.*

Allied to *P. Tarquinia*, but much larger, the primaries longer; the discoidal spots smaller, the discal spots double as large, a sub-marginal series of squamose whitish internervular spots or strigulae from sub-apical spots to external angle; apex minutely white spotted; patch on internal margin and band of secondaries deeper in colour; the same wings with a sub-marginal series of squamose whitish strigulae: body black, white spotted; primaries below paler than above; base of costa to rear end of cell dull orange, a discoidal ochreous streak below it; all the white spots better defined than above, the sub-marginal spots sharply defined merging into sub-apical spots at the upper end of the series; internal patch whitish, wider than above; apex and apical costa dull whitish; secondaries ochreous, becoming gradually brown towards the outer margin, black spots at base as in *P. Tarquinia*; a complete sub-marginal series of elongate-ovate white spots; body black, white spotted, legs and palpi black above, white below; expanse of wings, 3 inches 6 lines.

Cabinda (*Monteiro*).

Type B. M.

I should have described this long ago, but we had no examples of *P. Tarquinia* with which to compare it; lately, however, Capt. Shelley presented an example taken by himself at D'Urban; the two species differ most on the upper surface of the primaries and the under surface of the secondaries; the pattern of the under surface is in fact almost exactly that of *P. Lucretia*, but the ground colouring of the secondaries, and the colouring of the upper surface, and the form of the primaries, are very different.

P. protracta is almost as large as *P. dubia*.

NEW LYCÆNIDÆ FROM QUEENSLAND.

BY W. H. MISKIN.

The following notes contain descriptions of two species of this charming family, which will, I think, prove new to science: one of these is a *Deudorix*, the other a *Pseudodipsas*. Both are described from specimens in my collection, captured by myself, and in perfect condition.

PSEUDODIPSAS INNOTATUS, *n. sp.*

♂. *Upper-side*: satiny, violet-blue. *Fore-wing*: apex broadly black, narrowing off gradually to hinder angle, and abruptly to centre of costa; lightly fringed with white. *Hind-wing* with narrow black hinder margin, fringed with white, with black spots at termination of nervules.

♀. Black, with disc of fore-wing from base to rather beyond centre light lilac-blue. *Hind-wings* faintly shot with blue, with fringe of white as in ♂. Wings much less angulated than in ♂.

Under-side: both sexes pure white, without markings of any kind, excepting a minute black speck near abdominal margin towards the base.

Eyes beautiful sulphur-green.

Exp., ♂, $11\frac{1}{2}$ lines; ♀, $12\frac{1}{2}$ lines.

Hab.: Brisbane, Queensland.

DEUDORIX SIMSONI, *n. sp.*

♂. *Upper-side*: both wings deep indigo-blue, in front wing increasing in density towards apex and hinder margin, which are nearly black, a darker patch is also perceptible about the centre of wing, and the lobe of posterior wing has a black centre, which is bordered on upper and inner side with a very faint margin of red; between the tail and lobe, a sub-marginal streak of white.

Under-side: shining brown, with broad, sharply defined, dark brown transverse band across both wings at little beyond centre. *Fore-wing*: band commencing from costal margin, but not reaching inner margin, nor quite parallel with hinder margin, having an inclination towards anal angle, quite straight and without white border; a short discoidal band rather indistinct, and touching central band. *Hind-wing*: band straight until reaching elbow, and without white margin, from thence to abdominal margin it is lightly bordered on each side with white; a short, rather indistinct discal band of brown, remote from central band; caudal spot black, surmounted by an almost imperceptible border of red; lobe black, crowned with white; a fine sub-margin of white from lobe to caudal spot; tail black, tipped with white.

♀. Lighter blue than male, of a leaden hue; costal margin black, fore-wings somewhat more rounded than in ♂.

♂ with tuft of strong black hairs on inner margin of front wing on under-side.

Both sexes with scarlet between the eyes.

Exp., ♂, 14 lines; ♀, 16 lines.

Hab.: Port Denison and Brisbane, Queensland.

Brisbane: 18th March, 1874.

NOTES ON JAPANESE BUTTERFLIES, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES.

BY THE REV. R. P. MURRAY, M.A.

The insects to which the following observations and descriptions refer were collected by Mr. H. Pryer, mostly in the immediate neighbourhood of Yokohama.

Papilio Dehaani, Feld.—This species, which is probably not distinct from *P. Maacki*, Mén., appears to be not very uncommon, but, from its strong and rapid flight, is difficult to obtain in good condition.

P. Demetrius, Cram.

P. Alcinous, Klug.—There are two forms of this species, one black, the other fawn colour (*P. Mencius*, Feld.).

P. Sarpedon, Linn.

In addition, Mr. Pryer takes the following species: *P. Machaon*, L., *Xuthus*, L., "*Xuthulinus*" (? *Xuthulus*, Brem.), and *Pammon*, L. He sends me the following note on *P. Xuthulinus*: "I believe *Xuthulinus* to be a stunted form of *Xuthus*: the larva and food-plant are the same, and very strangely, *Xuthulinus* is the only single-brooded "*Papilio* we have here, appearing very early in the year; the larvæ feed up very rapidly just as the leaves are going off the trees in November, so the question naturally arises, what becomes of them from April to November? I think the small size is caused by bad and insufficient food: if I can get time, I will endeavour to breed them from the egg next spring."

Parnassius glacialis, Butl.—Two specimens from "Neko, about 100 miles north of Tokio." The species does not seem to occur on the mountains near Yokohama.

Anthocaris Scolymus, Butl.

Colias Hyale, Linn.—I have not seen specimens from Japan. Mr. Pryer states that it is extremely abundant both on the plains and on the mountains.

Terias læta, Boisd.—I am inclined to think that the insect described by Ménétries as *T. Jageri* is the Japanese form of *T. læta*. Certainly the specimens in my collection agree closely with his description and figure.

T. Mandarina, De l'Orza.

T. Hecabe, Linn.

T. Brenda, Doubl., Hew.—This species, which appears to be very common in Japan, was originally described from Western Africa. It is very variable in its appearance, the hind marginal border sometimes presenting a well-marked sinus, as in *T. Hecabe*, which in other cases the sinus is almost (or quite) obsolete. I am inclined to think that it is a form of the extremely variable and widely distributed *T. Hecabe*, L.

Gonepteryx rhamni, L.—I have only seen a single (damaged) specimen of this insect from Japan.

Pieris Melete, Mén.—“Varies considerably” (H. Pryer).

Chrysophanus phlæas, L.—The dark form (*C. Timeus*, Cram., *Eleus*, Fab., *chinensis*, Feld.) is only the summer brood of this species.

Lycæna Argiades, Pall.

L. Argia, Mén.—I think that I have rightly determined the specimens which I have referred to this species, though they all differ slightly from Ménétries' figure and description. The ♀ especially seems liable to vary. In all the specimens which have come under my observation, I notice the following points of difference from the typical *L. Argia*: on the under-side of the anterior wings there is a minute spot below that within the cell, and another on the costa between the first and second sub-costal nervules; on the posterior wings there is a spot on the inner margin near base; none of these are noticed by Ménétries. Above these are six (sometimes seven) marginal dots on the hind-wing instead of five. I do not, however, consider these small differences as of specific value. The insect seems common about Yokohama.

L. JAPONICA, *sp. nov.*

Alis suprà dilute cæruleis, postice brunneo-marginatis: subtus cinereis, nigro-maculatis (maculis albo-marginatis).

Allied to *L. Argia*, Mén.

♀. Wings above rather dull blue, with a narrow brown border to hind margin, well defined interiorly. *Under-side*: wings ash-grey; fore-wing with a discocellular streak, a spot within cell, another below it faintly indicated, and a transverse row of spots crossing the wing beyond the middle; all these markings are black, and are ringed with white. There are two sub-marginal rows of fuscous, rather elongate spots, the exterior very indistinct, and the inner suffusedly white margined, especially interiorly. A very fine fuscous marginal line before the cilia.

Hind-wings: a basal row of three spots, a discocellular streak; and a curved and angulated row of eight spots beyond middle; all these black, ringed with white. A double hind marginal row of indistinct fuscous lunules. Fringe dirty white.

Alar. exp., 1" 2".

Hab., Yokohama: Japan.

This species, though very close to *L. Argia*, seems distinct. It differs considerably in coloration, and exhibits no trace of the marginal spots of the hind-wing so conspicuous in *L. Argia*. I only possess a single specimen.

L. Ladonides, De l'Orza.—A single ♂ specimen. This species is very closely allied to *L. Argiolus*, Linn., and I cannot but doubt whether it be distinct.

L. Pryeri, Murray.—I believe that the nearest relationship of this very distinct species is with the *Argiolus* group.

L. Lycormas, Butler.—The only Japanese specimens I have seen are the types in Brit. Mus. I possess examples from Amoorland.

SATSUMA, *gen. nov.*

Oculi sat magni, pilosi.

Palpi valde pilosi, porrecti.

Antennæ graciles, sat longæ, distinctissime albo-annulatæ, in clavam distinctam subito desinentes.

Alæ angulatæ, anticæ venâ sub-costali triramosâ, postice ad angulum analem valde productæ.

Head of moderate size; eyes hairy; palpi moderately long, porrect, densely clothed with long hairs, terminal joint slender: antennæ rather long, slender, white ringed, with distinct fusiform club. Thorax robust. Wings triangular, elbowed on hind margin, especially the hind-wing, which possesses a distinct lobe at anal angle.

Male with a small, almost linear, patch on fore-wing, at extremity of cell, similar to that observed in many species of *Thecla*.

Hind-wings with a distinct groove to receive abdomen. Fringes spotted.

I have founded this genus to receive the curious species described by Mr. A. G. Butler (from a very imperfect specimen) as *Lycæna ferrea*, and which is possibly identical with *Thecla cærulescens*, Motsch., though the very vague description by the latter leaves the point uncertain.

The elbowed form of the wings, together with the strongly developed lobe at the anal angle of hind-wings (which may indicate an affinity to *Deudorix*), at once separate the genus from any other known to me. The neurulation seems to be nearly as in *Thecla*, but the second sub-costal nervule of the hind-wings is given off further from the base than in that genus.

Dipsas Attilia, Brem.—I have received two specimens, which I think may be referred to the ♀ of this species. They differ from the description of the ♂ in possessing a rather conspicuous sub-marginal row of bluish-white spots (that at root of tail possesses a black centre) on hind-wings above; between these spots and the margin is a well-marked bluish-white line, divided by the brown nervures.

D. sæpestriata, Hew.

D. lutea, Hew.

DIPSAS JAPONICA, *sp. nov.*

♂. *Alis suprâ viridi-micantibus*: *anticis margine externo nigro*; *posticis caudatis*, *late nigro-marginatis*. *Subtus brunneis*; *anticis strigâ transversâ albâ in ramum medianum primum desinente*, *fasciâque submarginali fuscâ*. *Posticis strigâ transversâ albâ*, *apud angulum analem literæ W instar*, *acute angulatâ*, *lunulis marginalibus albicantibus biseriatis*, *angulum analem versus maculis duabus fulvis (basin versus nigro-marginatis)*, *ocellos nigros gerentibus*, *lineâque præciliari albâ*. *Ciliis albis*.

♀. *Alis suprâ brunneis*: *subtus ut in mare*.

Alar. exp., 1" 10'''.

Hab. Japoniam.

Very nearly allied to *D. smaragdina*, Brem. (E. Siberia), from which, however, it seems to me distinct. Judging from Bremer's figure, the two species would seem to be alike on the upper-side; but *D. japonica* differs beneath in the absence of the discocellular markings, and in the transverse white streak of the hind-wing being *acutely* angulated towards the anal angle (not *obtuse*, as Bremer describes *D. smaragdina*). Between the two black spots at the anal angle of hind-wing is a third small one, bearing some whitish scales in the middle. There are a few metallic-blue scales on the outer edge of the spot at the anal angle. The orange is continued along the inner margin for a short distance.

DIPSAS ORIENTALIS, *sp. nov.*

♂. *Alis suprâ brunneis*, *anticis ad apicem marginemque exteriorem saturationibus*, *maculâ magnâ pallidâ*, *obliquâ*; *posticis caudatis*. *Alis subtus canis*: *anticis strigâ discocellulari fuscâ*, *strigâ transversâ albâ basin versus fusco-marginatâ*, *in ramum medianum primum desinente*, *maculisque obsoletis præmarginalibus fuscis*, *albo-marginatis*: *posticis strigâ discocellulari obsoletâ fuscâ*, *strigâ transversâ albâ*, *basin versus fusco-marginatâ*, *apud angulum analem literæ W instar obtuse angulatâ*, *lunulis præmarginalibus albis biseriatis*, *maculâ elongatâ marginis interioris (prope angulum analem)* *maculâque ad caudæ radicem nigro-pupillatâ*, *fulvis*, *lineâque præciliari albâ*.

Alar. exp., 1" 7'''.

Hab. Japoniam.

Very closely allied to *D. Taxila*, Brem. The fore-wings are brown, darker at the apex, and along the hind margin, and possess in the male a yellowish square patch at the end of the cell, which is continued obliquely in the direction of a point on the hind margin a little above the anal angle. This portion is ill-defined. On the under-side, the pattern of the wings much resembles that of *D. Taxila*, but the transverse streak of fore-wing is longer than in that species (judging from Bremer's figure), and the streak on the hind-wing is distinctly angulated in the form of a W, which does not appear to be the case in the allied species.

AMBLYPODIA JAPONICA, *sp. nov.*

Alis supra violaceo-cæruleis, late nigro-marginatis, anticis ad apicem subfalcatis, posticis ecaudatis : alis omnibus subtus brunneis, strigis fascisque saturatioribus.

Alar. exp., 1" 6'''.

Hab. Japoniam.

Nearly allied to *A. Rama*, Koll., but abundantly distinct therefrom. The fore-wings are more produced at the apex than in *A. Rama*, and the hind-wings are completely destitute of a tail.

All the wings are above of a rich dark blue, widely black bordered, with only a trace of discocellular streaks. *Under-side*: brown, whitish along inner margin of fore-wing. *Fore-wing*: an oblong mark closing cell, a spot within cell, a spot below each of these, a transverse sub-macular fascia beyond middle, bent on first median nervure, a series of lunules along the hind margin, and a line before the fringe darker brown. *Hind-wings*: markings very indistinct: a basal row of three minute blackish dots, followed by a transverse band of hardly perceptible brown spots; a rather large outlined discocellular mark; a transverse macular band, the spots composing which (except the two nearest the costa) are only outlined with darker; and a sub-marginal row of crescents, edged interiorly near anal angle by greyish-blue scales. Fringe shining brown. All the dark markings of the under-side are faintly and very narrowly edged with lighter brown.

Libythea Lepita, Moore.—Cannot be distinguished from Himalayan examples.

Neptis aceris, Lep.—Cannot be separated from the European species.

Euripus Charonda, Hew.

E. japonica, Feld. (*Diagoras*, Hew.).

Argynnis Sagana, Doubl., Hew.

A. Ella, Brem.

A. Laodice, Pall., var. *japonica*, Mén.

A. pallescens, Butl. ?—I am somewhat doubtful about this species, which I am almost inclined to regard as a variety of *A. Adippe*, W. V. The two specimens now before me (♂) are much larger and more richly coloured than Mr. Butler represents his *A. pallescens*, and indeed, agree more closely in some respects with his *A. vorax* (Shanghai), especially in the shape of the fore-wings, but they possess the three sub-apical silver spots on the under-side of fore-wing, mentioned as one of the points in which *A. pallescens* differs from *A. vorax*. Probably both these forms are local varieties of *A. Adippe*.

Pyrameis indica, Herbst.

P. cardui, Linn.—I have not seen Japanese specimens.

Vanessa Glauconia, Motsch.—Appears to me only a local form of *V. Charonia*, Drury.

V. xanthomelas, W. V.

V. c-aureum, Linn.

Lethe Sicelis, Hew.

Neope Goschkevitschi, Mén.

Satyrus Phædra, Linn., var. *bipunctatus*, Motsch.

Ypthima Argus, Butl. ?.

Mycalesis Gotama, Moore.

M. Perdiceas, Hew.

Pyrgus maculatus, Mén.

DAIMIO, *gen. nov.*

Antennæ costæ medium superantes, gracillimæ, clavâ fusiformi, hamatâ.

Palpi sat breves, squamosi, articulo ultimo distincto.

I have very briefly characterised this genus, which only contains, at present, a single species, *D. Tethys*, Mén. Hitherto this insect has been associated doubtfully with *Pyrgus* (sect. *Erynnis*) or with *Nisoniades*, but it differs considerably from both in structure. The antennæ are long and very slender, and terminate in a gradually formed hooked fusiform club. They are provided with a tuft of hair at the base. The palpi have the second joint covered beneath with squamous scales, whilst the terminal joint is scantily clothed with short hairs. The fore-wings of the male appear to be destitute of the costal fold found both in *Pyrgus* and *Nisoniades*.

D. Tethys, Mén.

Nisoniades montanus, Brem.

Pamphila Dara, Koll. ?—I am doubtful about the identity of the Japanese insect with this Himalayan form; but Indian examples in Brit. Mus. (so named) come very close to those sent by Mr. Pryer.

PAMPHILA VITREA, *sp. nov.* (?).

Alis suprà brunneis, basin versus (præsertim posticis) fusco-pilosis, anticis maculâ sub-apicali pellucidâ tripartitâ, maculâ discocellulari pellucidâ super alteram magnam quadratam, maculâ pallide albo-flavescente subopacâ in venam sub-medianam, maculâque pellucidâ minore inter ramos medianos superiores. Posticis immaculatis.

Subtus alis anticis brunneis, costâ apiceque ochraceis, maculis ut in paginâ superiore, strigâque pellucidâ obliquâ maculas quadratam sub-medianamque attingentis. Posticis ochraceis, maculis novem albis brunneo-marginatis, conspicuis. Ciliis albis.

Alar. exp., 1" 7'''.

Hab. Japoniam.

A distinct and well marked species.

P. guttata, Brem., Grey.

PAMPHILA VARIA, *sp. nov.* (?).

♂. *Alis* suprâ brunneis, anticis margine exteriori rectiusculâ, maculis quatuor minimis (unâ in cellulâ elongatâ). *Posticis* immaculatis. *Alis* subtus ochraceis (anticis ad marginem interiorem brunneis), venis nigris, anticis maculis duabus discocellularibus (inferiore majore), alteris duabus in regione exteriori, maculâ sub-apicali tripartitâ, linedque anteciliari nigrâ. *Posticis* maculâ obsoletâ basali, maculâ inter ramos sub-costales sub-flavâ, alteris duabus inter ramos medianos, linedque anteciliari nigrâ. *Ciliis* albis, ad apicem anticarum obsolete nigro-maculatis.

♀. *Alis* anticis (margine exteriori convexâ) maculis conspicuis (duabus discocellularibus) maculâ sub-apicali tripartitâ, alteris duabus in regione exteriori, strigâque minimâ super marginem interiorem. *Posticis* immaculatis. Subtus ut in mare. *Ciliis* albis, ad apicem anticarum nigro-maculatis.

Alar. exp., ♂, 1" 4" : ♀, 1" 6".

Hab. Japoniam.

I believe that the insects above described may be sexes of one species, on account of the similarity of the markings of the under-side. It is, however, possible that they are specifically distinct. Only one male has fallen under my observation, but two females now before me differ somewhat on the under-side of the hind-wing, one of them possessing an additional spot between the costal vein and first sub-costal nervule. There is a tendency in both sexes towards the formation on the under-side of both wings of a sub-marginal row of yellow spots.

I have described the hind-wing as spotless above, but in both the females there is an appearance of a very minute central spot. I think, however, that this is accidental, and has been caused in the process of setting.

PAMPHILA PELLUCIDA, *sp. nov.* (?).

Alis suprâ brunneis, albo-maculatis : anticis maculis duabus discocellularibus super alteram exteriori magnam quadratam, maculâ sub-apicali tripartitâ, alteris duabus inter maculas sub-apicalem et quadratam, strigâque parvâ in venâ sub-medianâ (maculis omnibus pellucidis). *Posticis* maculis quatuor pellucidis, fasciam brevem formantibus.

Subtus, *alis* ochraceo-brunneis, anticis ad marginem interiorem nigro-fuscis, maculis ut in paginâ superiore. *Ciliis* albis.

Alar. exp., 1" 9".

Hab. Japoniam.

Allied to *P. guttata*, Brem., Grey, but sufficiently distinct. The spots on the hind-wing are arranged in a curious alternate manner, the first and third being nearer the hind margin than the second and fourth.

The above notes relate only to insects in my own collection, and do not pretend to form anything like a complete list of the butterflies of Yokohama. I believe that Mr. Pryer is now engaged in the compilation of such a list, to the appearance of which I look forward with much interest.

BRITISH HEMIPTERA—ADDITIONAL SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

(continued from page 147.)

TINGIDINA.

TINGIDIDÆ.

ORTHOSTIRA MACROPHTHALMA.

Orthostira macrophthalma, Fieb., Ent. Monogr., 49, pl. 4, fig. 4 (1844) ;

J. Sahlb., E. M. Mag., x, 243, 4 (1874).

,, *pusilla*, Fieb., Eur. Hem., 131, 8 (1861), ? Fall.,, *cylindricornis*, Thoms., Opusc., iv, 401, 4 (1871).*Undeveloped form*.—Broad-ovate, reticulate, dingy light brown.*Antennæ* black, third joint cylindrical, scarcely thickened at the apex.*Pronotum*: hood short, transverse, rhomboidal; side margins broad, with 2½ rows of meshes, circumference rounded. *Elytra*: sutural area with 2 rows, discoidal cell with 4 rows, exterior area with 3 to 4 indistinct rows, and the margin with one row of meshes.*Head* black; the two spines on the crown short, stout, slightly divergent, black, brown at the apex. *Antennæ* black; the long third joint cylindrical, very slightly thickened towards the apex; fourth stout, short-fusiform, thickly clothed with fine long hairs. *Eyes* dark ferruginous. *Rostrum* yellowish-brown; rostral channel exteriorly broadly pale yellowish.*Thorax*—*pronotum* short-subcordate, anterior half black, punctured; hood pale brownish, with dark reticulation, short, convex, transverse, rhomboidal, projecting but little over the head, obscurely carinate, with irregular small reticulate foveæ, of which there are three to four in the front row, two to three in the second, and one in the third, on each side of the blackish keel; side margins reflexed, transparent, broad, circumference rounded (the anterior and posterior angles being broadly rounded off), with two entire rows of transverse, long-oval meshes, seven or eight being in the outer, and six in the inner one, and between the rows, on the anterior half only, one or two small, irregular cells, the divisional lines black; the three discoidal keels deep, transparent, the middle one deepest, straight, and reaching on to the hood, with six to seven right-angled meshes, the side keels not so deep, sub-parallel, abruptly shortened in front, with five to six meshes, similar to those of the middle keel; scutellum process short, pale brownish, foveate posteriorly exterior to the side keels. *Elytra* with foveate reticulation, four rows of meshes in the discoidal cell, of which latter the margins are much raised; two rows in the sutural area, and three to four in the exterior at the widest part; side margins reflexed, transparent, narrow, with one row of sub-quadrangular meshes. *Sternum* black, finely punctured; prosternum anteriorly, metasternum posteriorly broadly, and base of coxæ less distinctly, pale yellowish. *Legs*—*coxæ* and *thighs* pitchy-black, paler at base and apex; *tibiæ* and *tarsi* yellowish-brown, the apex of the latter piceous.*Abdomen* black.

Length 1½ line.

The synonymy is extremely confused. Fieber, in the Eur. Hem., 131, 8 (1861), says that his *O. macrophthalma*=*Tingis pusilla*, Fall., and in Wien. Ent. Monats., vii, 56 (1863), adds=*Monanthia cinerea*

Flor, *nec* Fieb., *O. cinerea*, Fieb., being *Tingis nigrina*, Fall., = *M. intermedia*, Flor (the last, however, is reckoned by Thomson as = *O. platychila*, Fieb., *vide* E. M. Mag., x, 187, 2, and 243, 2). Thomson, Opusc. Ent., iv, 400, 3, says that *T. pusilla*, Fall., = *O. pusilla*, Fieb., = *T. nigrina*, Fall.; he takes no notice of *O. macrophthalma*, Fieb., but describes the species as new, under the name of *O. cylindricornis*.

Dr. J. Sahlberg has kindly sent me exponents of *O. macrophthalma* and *O. nigrina*, Fall., which appear to be distinct species, the former having black antennæ, and only 2 rows of reticulation on the sutural area of the elytra; the latter having the antennæ thinner, and the 2nd joint reddish-yellow, and the elytra with 3 rows of reticulation on the sutural area, both being otherwise very much alike. It seems, therefore, that, as there is no doubt our species is *O. macrophthalma*, Fieb., the only safe way at present is to adopt this name, leaving the synonymy to be investigated hereafter.

A single example of the undeveloped form, from the collection of the late Mr. T. J. Bold, was taken by Mr. J. Hardy, in moss on Cheviot, in August. It is the species recorded as *O. cervina* in the "Natural History Transactions of Northumberland and Durham," p. 354, 24 (1872), as I was informed by Mr. Bold.

ANTHOCORINA.

ANTHOCORIDÆ.

PIESTOSTETHUS FORMICETORUM.

Anthocoris formicetorum, Boh., Oef. k. Vet. Ak. Förh., 158, 23 (1844).

Xylocoris formiceticola, Sahlb., Geoc. Fenn., 82, 6 (1848).

Xylocoris formicetorum, Bär., Ent. Zeits., i, 195 (1858).

Piezostethus formicetorum, Fieb., Eur. Hem., 139, 2 (1861).

Pitchy-black, shining, finely pubescent; *elytra* dingy whitish; *legs* stout, dingy whitish.

Head: middle lobe pale; *antennæ* delicately pilose, 1st joint thickest, piceous, 2nd less thick, dingy whitish on the basal half, the rest fusco-piceous, 3rd and 4th thin, fusco-piceous.

Thorax — *pronotum* pitchy-black, faintly punctulate, more strongly posteriorly, covered with very fine short pubescence. *Scutellum* concolorous with the pronotum, in the middle a wide fovea. *Elytra*, *clavus*, and *corium* dingy whitish, clothed with fine, short, pale hairs, *clavus* inner and posterior margins with a piceous line, *corium* shaded with fuscous posteriorly. *Membrane* ample, hyaline, iridescent, the neuration difficult to see. *Legs* strong, dingy whitish; *thighs* infuscated; posterior *tibiæ* with stout, projecting hairs; *tarsi*: last joint piceous.

Abdomen black, beneath finely pilose.

Length $\frac{3}{4}$ line.

Found by Dr. Buchanan White at Braemar, in nests of *Formica rufa*, a similar habitat to that in which it was first taken by Boheman.

Lee: November, 1874.

NOTES ON THE HABITS OF *CICADA GIGAS*.

BY GERVASE F. MATHEW, R.N., F.L.S., &c.

After lying for a week off Panama, and nearly five miles from the shore, we were not at all sorry on the afternoon of the 27th February, 1874, to raise our anchor, and, favoured by the afternoon breeze, drop down under sail to the island of Tobago, where we arrived at six o'clock and took up a position within a convenient distance of the landing place. Soon afterwards, while standing on deck admiring the beauties of the island with its immense profusion of tropical trees and shrubs, and the varied hue of their foliage, I suddenly heard, clear and shrill, through the evening air, a whistle, as distinct as that of a locomotive, and turned at once and looked in the direction from whence it came, expecting to see a steamboat or the chimney of some factory on shore, but nothing of the kind was visible. The whistling continued more or less until sunset, when it gradually ceased. Upon enquiring of one of the natives what this was caused by, he informed me it was the cry of the "tree locust," and, being unacquainted with any locust capable of producing such a noise, I determined to work out the history of the creature during our stay off the island, and as we were there for just a month, I had a pretty good opportunity of so doing. In the first place, I of course soon found out that the whistling was created, not by a "locust," but by a *Cicada*, although it was some days before I was actually able to capture an individual, on account of the individuals that were out when we first arrived at the island frequenting the topmost boughs of the loftiest trees. Moreover, they were not at that time nearly so numerous as they afterwards became, for, before we left, on the 24th March, they were out in great numbers, and had also, to a certain degree, altered their habits, and were often to be seen flying near the ground, or sitting on trunks of trees within easy reach, especially just before dusk or when the weather was at all damp and gloomy.

The first day I went on shore, although I heard them in the trees above me, I could not see them, and it was only when they became more plentiful that they seemed to move about much, and I was able to capture a few and note their habits. This creature, considering its size, is gifted with a wonderfully powerful and peculiar voice—if I may so term it. Let my reader suppose he is standing in some secluded spot in a forest with lofty trees all round him. There is not a breath of air stirring, and hardly a sound, save, perhaps, the hum of a wandering bee, the whirr of a passing humming-bird, or the rustle of a lizard amongst the dead leaves, to interrupt the oppressive stillness

of a tropical afternoon. Suddenly, from right above, you hear one or two hoarse, monotonous cries something like the croak of a tree-frog, and, looking upwards, wonder what it can be, but wait a moment, this is merely a signal, for the next minute everywhere above and around you these croaks are repeated in rapid and increasing succession until they merge into a long shrill whistle almost exactly similar to the whistle of a first-rate locomotive; this continues for nearly half a minute, and then abruptly terminates, and everything for a short time becomes as still as before, but presently, similar cries will be heard in the far distance, as if in reply to those which have just died away overhead. This whistling pierces one's ears to such a degree that its vibrations can be felt long after it has ceased.

These *Cicadæ* must be able to keep time with marvellous regularity, for the noise they make, and it really cannot be called by any other name, is evidently the combined efforts of a whole colony, although a single insect is able to produce a very shrill cry. I kept a few in confinement several days in the hope that I might be able to observe them while in the act of whistling, but they remained silent in a most obstinate manner, and could only be prevailed on to croak when they were touched or otherwise annoyed. One day, however, while shooting humming-birds, I heard a *Cicada* in full whistle on a neighbouring cocoa-nut tree, and upon looking in the direction from whence the cries proceeded, observed the creature on the trunk of the tree, about fifteen feet from the ground. It was then silent, but in the course of a few moments it began its short hoarse cries, and, while so doing, remained perfectly motionless; but, as soon as the whistling commenced, it raised its abdomen, and, with a slightly tremulous movement, walked steadily backwards until its song had ceased, when it halted: I then fired at it with my little walking-stick gun and brought it down. It was a fine specimen, and none the worse for two or three dust shot through its thorax.

These insects frequent by preference trees growing in ravines where the soil is generally soft and damp, and in which their larvæ and pupæ find no difficulty in burrowing. When the latter are full grown and ready for their last transformation, they emerge from the ground and crawl about four or five feet up the trunk of a tree, when they firmly fix themselves to the bark by means of their powerfully hooked fore tibiae. In a short time the pupa-case splits down the middle of the back, and the perfect creature walks out. Trees possessing a rough bark are usually selected, and on some I noticed many dozens of these empty cases. The flight of the mature *Cicada* is

abrupt, rapid, and by no means graceful; and it does not appear to have the power of controlling itself when on the wing, for I have often seen it fly in an insane manner against the trunk of a tree, a branch, or any other object that may be in its line of flight; and when it has performed its journey without any accident, it alights abruptly and awkwardly. As a rule, however, it does not attempt to fly to any great distance at a time.

Difference of temperature affects them considerably, for in hot sultry weather they were most vociferous, whereas when it was (comparatively speaking) cool and breezy they were almost silent. I did not observe any of the females in the act of oviposition.

H. M. S. "Britannia," Dartmouth:
14th December, 1874.

NOTES ON *CICINDELIDÆ* AND *CARABIDÆ*, AND DESCRIPTIONS
OF NEW SPECIES (No. 19).

BY H. W. BATES, F.L.S., &c.

SCARITES (*HAPLOTRACHELUS*) *POLYPLEURUS*, *sp. n.*

Latus, oblongo-ovatus, modice convexus, niger, sub-opacus; thorace lunato, lateribus utrinque basin versus paululum sinuatis; elytris ovatis, utrinque costis 8 lævibus (octava marginali acutissima) interstitiis granulatis, striato-punctulatis. *Long. 17 lin.*

Rather more ovate in form than *H. holcopleurus* and *patruelis*, and differing conspicuously in the sculpture of the elytra. On each elytron there are seven narrow, slightly raised and smooth lines, besides the very strongly raised carina of the 8th interstice; the sutural and 7th lines are less distinct than the others, and all terminate before the apex; the broad interstices between the raised lines are minutely granulate and opaque, as is also the apical surface, and there are traces of two rows of small punctures down each interstice. The head is of the same form as in *H. patruelis*; but the mandibles are nearly smooth. The thorax is of a half-moon shape, twice as broad as long, with advanced anterior angles; but it is not regularly rounded behind, the sides being obliquely sinuated, and tending to form a rather distinct basal lobe; the anterior transverse line unites at the apical angles with the marginal sulcus.

Caffraria (Mr. Gerrard); four examples.

SCARITES (*HAPLOTRACHELUS*) *LATESULCATUS*, *sp. n.*

Angustior, niger, minus nitidus; mandibulis suprâ multicarinatis,

vix striatis; thorace transversim quadrato, basi paululum late lobato; elytris ovatis, sulcis septem modice impressis transversim rugosis, carinâque validâ laterali.
Long. 15 lin.

Much narrower than the allied species; dull black, slightly shining. Mandibles with the usual longitudinal carinæ (four on the right mandible) much more strongly pronounced than in *H. holco-pleurus* and *polypleurus*; the oblique striæ moderately distinct. Thorax rather longer and narrower (6 millim. long, $9\frac{1}{2}$ millim. broad), with more parallel sides; but hind angles much rounded, with a very short but distinct broad basal lobe. Elytra rather narrower than the thorax, elongate-ovate; marked each with seven broadish furrows, becoming gradually deeper from the suture to the side, and roughened with transverse wrinkles; none of them quite reach the apex, where the surface is even and minutely coriaceous. The lateral carina projects throughout beyond the margin, and conceals it when viewed from above.

Caffraria (Mr. Gerrard); two examples.

SCARITES (HAPLOTRACHELUS) PUNCTULIGER, *sp. n.*

Elongato-subovatus, niger, obscurus, modice nitidus; elytris punctato-striatis, striis exterioribus profundius impressis, interstitio septimo punctis magnis setiferis.
Long. 10 lin.

Similar in form to *H. capicola*, but of a duller black, and distinguished further by the sharp lateral carina, which, however, does not overtop the margin on the apical half of the elytra. The striæ are all distinctly punctulate, and the interstices convex, but they become blended before the apex, where the surface is rugulose; the 7th interstice (before the carina) has a row of long setiferous punctures, and the 3rd has two large punctures near the apex. The mandibles are peculiar, in having the longitudinal carinæ effaced. The thorax is nearly semi-lunate, the sides nearly parallel, and the base is broadly and angularly rounded; the anterior transverse line is very strongly impressed. The anterior tibiæ have two denticulations above the third digitation.

Graham's Town, S. Africa; one example.

SCARITES (HAPLOTRACHELUS ?) ATROPIS, *sp. n.*

Sub-cylindricus, niger, nitidus; thorace quadrato, postice valde rotundato; elytris subtiliter striatis, striis exterioribus profundius impressis ibique interstitiis angustioribus, interstitio tertio 4-punctato, octavo latissimo, lævi.
Long. 10½ lin.

Resembling in general form and in the shape of the thorax *Scarites*

inermis (Chaud.), *rugiceps* and others of the same section, but differing from the genus *Scarites* by the obtuse and rounded tip of the maxillæ, and in the relatively short penultimate joint of the maxillary palpi, in which characters (and the untoothed thorax) it agrees with *Haplotrachelus*. It differs from this genus in the absence of raised carina along the margins of the elytra; but the exterior edge of the 7th striæ is slightly raised throughout, and this may be considered as the carina in a rudimentary form. The general colour is deep glossy-black. The head much resembles that of *H. capicola*, the mandibles are strongly carinated and striated, but the furrow between the two principal carinæ is simply granulate at the base. The front of the head is strongly striated, the eyes are encased behind in an orbit which is at least as prominent as the eye. The thorax is of the more elongate form of *H. inermis*; it has a marginal row of seven or eight setiform punctures on each side; the anterior transverse impression is very sharply marked. The elytra have each seven fine striæ, punctured only at the apex; the dorsal interstices are plane, the lateral ones slightly convex and narrower; the third has four or five large setiferous punctures, the first very near the base, the second in the middle; the eighth interstice is unusually broad; it is steeply sloping to the margin and very smooth, except in the marginal groove, which has a few fine granules mixed with usual row of larger ones. The shoulders of the elytra have no trace of the usual tooth, and are rounded to the pedicel; the base has a few large granules. The anterior tibiæ have four denticulations above the third digitation; the middle tibiæ are unispinose.

Caffraria (Mr. Gerrard); one example.

SCARITES (GLYPTOGRUS) INSCULPTUS, *sp. n.*

Elongato-oblongus, depressus, niger; capite magno, lævi; mandibulis vix striatis; maxillis obtusis; palpis articulo penultimo multo breviori; thorace postice dentato, basi valde lobato; elytris sub-parallelis, dorso seriatim foveolatis, utrinque tricostatis, et lateribus carinatis.

Long. $15\frac{1}{2}$ lin.

A species differing in essential points from all genera or groups hitherto defined. It agrees best with the typical *Teniolobi*, but differs in the blunt apices of the maxillæ. From *Haplotrachelus*, *Dyscherus*, &c., it differs in the form and dentation of the thorax. The antennæ are peculiar also, in being of unusual length and stoutness, the exterior joints being elongate and robust. The mentum is transverse-quadrated, with the side lobes broad and truncated, and shorter than the central tooth; its surface is sprinkled with granules, and there are

only slight traces of the central and lateral carinæ; the cheeks flanking the mentum are also unusually short, and are strongly sinuated. The mandibles are normal, except that the inner edges do not form distinct conical teeth. The frontal furrows are well marked, but there are scarcely any traces of striæ; the posterior orbits project further than the eyes. The thorax is broader than the head, the anterior angles advanced and acute, the sides narrowing very abruptly and with a strong sinuation to the basal lobe, which is almost rectangular and sinuated in the middle; the surface is flattish and smooth, with the anterior transverse line impressed only (and very vaguely) near the angles. The elytra are oblong and depressed, with slightly oblique and toothed shoulders; the surface is marked by rows of large punctures, extending quite to the apex, and on each elytron three narrow, strongly raised lines, besides the lateral carina, which completely overtops the more than vertical and smooth epipleuræ; punctures and ridges arise alike from a straight basal ridge, from which there is a vertical declivity, strongly granulated, to the pedicel; the suture is not raised, and the three ridges are uninterrupted, except near the apex. The anterior tibiæ have no denticulation above the third digitation; the middle tibiæ have two external spines, the upper one short and stout.

The many well-marked peculiarities of this fine species necessitate the formation of a group (equivalent to *Haplotrachelus*, *Tæniolobus*, &c.) for its reception, to which the name *Glyptogrus* may be applied. It is evidently allied to *S. glypticus*, Perty (erroneously placed as a synonym of *S. excavatus*, Kirby), but the elytral sculpture differs much from Perty's description.

Bahia (Edwyn C. Reed); two examples.

(To be continued).

DESCRIPTIONS OF NEW SPECIES OF *EUMORPHUS* & *CORYNOMALUS*.

BY THE REV. H. S. GORHAM.

Genus *EUMORPHUS*, Weber (Sec. C, a, Gerst.).

EUMORPHUS ANDAMANENSIS, sp. n.

Oblongus, nigro-piceus, sub-opacus, elytris sub-parallelis maculis duabus transversis flavis, femoribus (basi exceptâ) testaceis.

Long. lin. 6, ♂ ♀.

Mas: tibiis anticis dente infra medium distante, intermediis dente parvo triangulari, sub-apicali, armatis; his apice incurvatis. Fœmina: elytris margine ad apicem productâ.

Head finely and thickly punctured between the eyes, palpi black. Thorax nearly opaque, disc even, the middle channelled throughout its length, hind angles acute, and not much more produced in the male than in the female; sides sinuous, narrowed towards the front. Elytra a little shining, very finely and obsoletely punctured, and finely coriaceous between the punctures, of a dull leaden black, the usual yellow spots are transverse and rather irregular in shape, the hinder one being more quadrate than the front one: their sides are almost parallel, but slightly widened (in the male) till near the apical spot, the apex of each is rounded separately. In the female the sides are narrowed from the middle, and the apical portion of the elytra is depressed and produced in a manner I do not observe in any other species of the genus, but which (in a less degree) may be seen in *convexicollis*, ♀. Antennæ black, rather long. Legs pitchy-black, apical half of the femora testaceous.

Hab., Andaman Isles.

This species comes in the same section as *pulchripes*, Gerst., but cannot be confounded with it. It is considerably larger, the legs are differently coloured, the tooth on the anterior tibiæ is larger and stands out, and is also *below* the middle, not above as in that species.

Genus CORYNOMALUS (Dej.), Erichson.

CORYNOMALUS TÆDIFER, *sp. n.*

Niger, opacus, elytris obsolete punctatis, nigris, vel nigro-cæruleis, thorace quadrato; antennis clavâ totâ testaceâ. Long. lin. 4, ♀.

Head slightly shining, with a few scattered punctures, and with the mouth-organs entirely black. Thorax hardly wider than long (if the anterior angles are included), opaque, disc uneven, the usual impressed sulci and basal line, and a channel in the middle reaching neither base nor front margin. Elytra opaque, black (in my specimen with a faint greenish tint), with scattered, obsolete and flat-bottomed punctures, margin with larger ones, sub-quadrate, and very convex; under-side of body and legs shining, entirely black. Antennæ black, with the club (which is clothed with a fine pubescence) wholly testaceous.

Hab., Peru.

In my own collection, from Deyrolle.

This curious *Corynomalus* is unlike any species in the genus except *tarsatus*, Er., of which I thought it might be a variety. The examination of a specimen of *tarsatus* brought by Mr. Edward Bartlett from Peru, enables me to describe it as quite distinct. From *tarsatus* it is readily distinguished by having the tarsi *black*, and the *whole* of the club of the antennæ red, as well as by its general colour. I have, I believe, seen it in other collections with the elytra bluer than in my specimen.

Shipley: December, 1874.

DESCRIPTIONS OF SIX NEW SPECIES OF BUTTERFLIES FROM
SOUTH AMERICA, WEST AFRICA, AND BORNEO.

BY W. C. HEWITSON, F.L.S.

HELICONIA LONGARENA.

Upper-side : black. Both wings crossed near the outer margin by a series of longitudinally bifid pale yellow spots, irregular on the anterior wing, where it commences near the costal margin by three spots ; regular on the posterior wing, where it is composed of seven spots. Anterior wing with a large scarlet spot from the base, divided into three parts by the median nervure and its first branch ; an oblique band of three pale yellow spots at the middle, the first spot near the costal margin trifid, the third bifid, all more or less irrorated with brown. Posterior wing crossed near the base by a broad scarlet band.

Under-side : as above, except that the base of the costal margin of the anterior wing is orange ; the base of the posterior wing yellow, succeeded by orange.

Exp., $3\frac{1}{10}$ inch. Hab., New Granada.

I am indebted to Mr. James Backhouse of York for this very beautiful species. It belongs to the *Hecalesia* group.

HELICONIA GYNÆSIA.

Upper-side : black. Both wings crossed near the outer margin by a series of pale yellow spots ; irregular in size on the anterior wing, regular, seven in number, and caudate on the posterior wing. Anterior wing with a trifid spot at the middle of the costal margin, a larger trifid spot below this, and a pyriform spot between the first and second branches of the median nervure all yellow. Posterior wing crossed near the base by a broad band of orange.

Under-side : as above, except that the base of the costal margin of the anterior wing is yellow ; the base of the posterior wing orange.

Exp., $3\frac{9}{10}$ inch.

Also of the *Hecalesia* group. I purchased it at the sale of the Norris collection, and I do not know its locality.

IOLAUS CYTÆIS.

Upper-side : ♂, cerulean-blue. Anterior wing with the costal margin rufous-brown ; the apical half dark brown, the inner margin convex. Posterior wing with two tails ; the apex brown, the outer margin black, narrow.

Under-side: white; both wings crossed beyond the middle by a linear brown band, and by a sub-marginal very indistinct rufous band. Anterior wing with the outer margin rufous. Posterior wing with the lobe and caudal spot black, broadly bordered with orange, the outer margin black.

Exp., $1\frac{2}{10}$ inch. Hab., Fernando Po (Rogers).

Much like some of the Indian species.

In my own collection.

LIPHYRA VININGA.

Upper-side: ♀, indigo-blue. Anterior wing pointed at the apex, sinuated below, convex on the outer margin, the costal and outer margins dark brown, broad. Posterior wing angular at the middle of the outer margin, which is dark brown and narrow.

Under-side: grey-brown, paler towards the outer margins.

Exp., $1\frac{7}{10}$ inch. Hab., Fernando Po (Rogers).

In my own collection.

ADOLIAS CENESPOLIS.

Upper-side: ♀, pale rufous-brown, tinted with lilac beyond the middle. Both wings crossed at the middle by a common band of white spots, smaller towards the inner margin of the posterior wing: both crossed beyond the middle by a band of hastate black spots bordered below with white; the outer margin of both dark brown. Anterior wing with a brown spot bordered with black at the end of the cell: the costal margin and apex broadly dark brown marked by a small white spot between the transverse bands.

Under-side: as above, except that it is much paler and pearly-white beyond the middle; that the anterior wing has a round spot within the cell; that the posterior wing has a smaller spot within the cell, and a spot bordered with brown at the end of the cell.

Exp., $3\frac{3}{10}$ inch. Hab., Borneo.

In the collection of Henley G. Smith, Esq.

In form like *A. Teuta*, but quite unlike any known species.

ERGOLIS ACTISANES.

Upper-side: ♂, dark rufous-brown. Both wings crossed near the base and the middle by red-brown bands, bordered on both sides with dark brown; both crossed beyond the middle by lunular dark brown spots, bordered on both sides by a linear band of brown; both with a sub-marginal line of black. Anterior wing with two lines in the cell, and two at the end of the cell, dark brown.

Under-side: as above, except as the transverse bands are suffused with dark brown, and that the anterior wing has a sub-apical white spot.

Female like the male but paler, with a white sub-apical spot on the anterior wing.

Exp., $2\frac{2}{15}$ inch.

In my own collection, from the Gaboon (Rogers) and Cameroons (Rutherford).

The largest known species in this genus.

Oatlands, Weybridge:

November, 1874.

HEMIPTERA: SYNONYMIC NOTES.

BERYTINA.

BERYTUS MINOR, H.-Schf.

Berytus commutatus (Fieb.), D. & S., Brit. Hem., i, 158, 7 (1865).

The latter was retained as distinct in deference to the views of Fieber, but we now believe, as indeed we hinted at the time it was described (*op. cit.* p. 160), that it is only *B. minor*.

LYGÆINA.

DRYMUS PILICORNIS.

Pachymerus pilicornis, Muls., Opusc., i, 118 (1852).

Rhyparochromus pilicornis, D. & S., Brit. Hem., i, 202, 1 (1865).

Drymus latus, D. & S., Ent. Mo. Mag., viii, 25 (1871).

When the insect was described under the last name, its identity with Mulsant's species was overlooked, but it was rightly determined as a *Drymus*. The original example was returned to us by Fieber as *P. pilicornis*, Mulsant.

LAMPROPLAX PICEUS.

Pachymerus piceus, Flor, Rhyn. Liv., i, 251, 12 (1860).

Meyalonotus piceus, Fieb., Ent. Monats., vii, 55 (1863).

Lamproplax Sharpi, D. & S., Ent. Mo. Mag., iv, 244 (1868).

The correctness of the suspicion expressed by us (Ent. Mo. Mag., iv, 265) that this species might prove to be Flor's *P. piceus*, is verified by Dr. J. Sahlberg, who writes to us, "*Lamp. Sharpi* agrees well with Flor's *Pachym. piceus*, and appears "without doubt to be the same species."

STETHOTROPIS INCANA, Fieb., Verh. k. k. Zool.-bot. Gesells., xx, 245, t. 5, fig. 3 (1870); D. & S., Ent. Mo. Mag., vi, 241 (1870), = *Stygnocoris rusticus*, Fall, D. & S., Brit. Hem., i, 214, 1 (1865).

The original specimen from which Fieber made his figure, and deduced the characters of his genus *Stethotropis*, proves to be only the macropterous form of *Stygnocoris rusticus*. The insect is altogether more robust than the ordinary brachypterous form, the pronotum especially differing in being more convex, scarcely constricted at the sides, and, therefore, more regularly trapezoidal, the antennæ and legs are also darker in colour. Fieber's genus will not stand.

HYPNOPHILUS, D. & S., Brit. Hem., i, 208 (1865).

This generic name having been employed before, *Hypnobius* is now proposed as a substitute.

PACHYMERUS.

In the Oef. k. vet. Ak. Förh., 57, 47 (1872), Professor Stål has revived the name *Pachymerus*, St. F. & Serville, for a genus of *Lygæina*, but Amyot & Serville in their "Hist. nat. des Insectes—Hémiptères," p. 253 (1843), expressly gave up the name created by St. Fargeau & Serville in the Enc. Meth., x, 322 (1827), because, as they say, of its previous employment by Latreille (1817) for a genus of *Coleoptera*, and they adopted *Rhyparochromus*, Curtis, instead. The name, however, appears to have been first used by Thunberg in 1805 for a genus of *Curculionidæ*, and, if it is now to be restored, it ought surely to be given to some of its first owners, not being eligible for *Hemiptera*.

TINGIDINA.

In the "Enumeratio Hemipterorum," iii, 122 (1873), Professor Stål has substituted, on the ground of priority, the generic name "*ACALYPTA*," Westwood, Introd., ii, Syn. Gen., 121 (1840), for *ORTHOSTIRA*, Fieb., Ent. Monog., 29 & 46 (1844), but this cannot stand, for Schönherr had employed *Acalyptus*, in *Curculionidæ*, in 1836.

CAPSINA.

TERATOCORIS SAUNDERSI, D. & S., Ent. Mo. Mag., v, 260, 2 (1869), = *T. Flori*, J. Sahlb., Not. Sällsk. Fl. & Faun. Fenn. Förh., xi, 290, 79 (1870), *teste* J. Sahlberg in litt.

TYTTHUS INSIGNIS, D. & S., Ent. Mo. Mag., ii, 247, 1 (1866), = *T. flaveolus*, Reut., Not. Sällsk. Fl. & Faun. Fenn., xi, 323, 4, tab. 1, fig. 6 (1870).

CONOSTETHUS SALINUS, J. Sahlb., Not. Fenn. Fl. & Faun. Fenn., xi, 296, 116 (Jan., 1870), = *C. griseus*, D. & S., Ent. Mo. Mag., vi, 242, 2 (Mar., 1870).

LITOSOMA BICOLOR, D. & S., Ent. Mo. Mag., iv, 267 (1868), = *L. chloropterus*, Kirschb., Caps., 89, 121 & 156, 21 (1855).

Our opinion as to this insect being distinct from *L. chloropterus*, Kirschb., was confirmed by Fieber, to whom we sent some males. Evidently he did not know this sex, and it is somewhat singular that Kirschbaum omitted in his description one of the principal characters of identity, namely, the dark streak down the clavus and inner margin of the corium. All the females we have taken in company with *L. bicolor* are certainly referable to *L. chloropterus*, in favour of which we now sink the former name.

MACROCOLEUS HARDYI, Bold, Nat. Hist. Trans., Northumberland and Durham, iv, 358, 69 (1872), = *M. molliculus*, Fall.

Bold's specimens sent for confirmation of his species being distinct from *M. molliculus*, were only the last named in very fine condition.

ANTHOCORINA.

PIEZOSTETHUS CURSITANS.

Anthocoris cursitans, Fall., Hem. Succ., 69, 6 (1829).

Xylocoris rufipennis, L. Duf., Ann. Ent. France, ii, 106, 1 (1833).

Xylocoris bicolor, Scholz, Arb. u. Veränd., 116, 2 (1847).

Piezostethus rufipennis, D. & S., Brit. Hem., i, 501, 2 (1865).

Piezostethus cursitans, Reut., Oef. k. vet. Ak. Förh., 411, 3 (1871).

This amendment is made on the authority of Reuter, *l. c.*, where the full synonymy is given.

CERATOCOMBUS COLEOPTRATUS.

Anthocoris coleoptrata, Zett., Act. Holm., 74, 24 (1819).

Bryocoris muscorum, Fall., Hem. Suec., 153, 3 (1829).

Ceratocombus muscorum, Fieb., Eur. Hem., 143 (1861), D. & S., Brit. Hem., i, 514, 1 (1865).

Ceratocombus coleoptratus, Reut., Oef. k. vet. Ak. Förh., 406, 1 (1871).

Fallén, *l. c.*, gives, as a synonym, *Anthocoris coleoptrata*, Zett.? but Reuter, *l. c.*, cites this name as the prior one without any doubt.

OCULATINA.

SALDA versus ACANTHIA.

In the Syst. Entom., 693, 159 (1775), Fabricius established the genus *Acanthia*, the first or typical species being *Cimex lectularius*, L., and he included fourteen other discordant species.

In the Ent. Syst., iv, 67, 211 (1794), he preserved the genus *Acanthia* and increased the number of species to 45, but still kept *C. lectularius* as the type.

But in the Syst. Rhyng., 112, 20 (1803), he restricted *Acanthia* to two species—*lectularia*, L., and *hemiptera*, Fab., and referred the species previously placed in the genus to the new genera *Salda*, *Aradus*, *Syrtsis*, and *Tingis*; and this arrangement has since been generally followed.

Professor Stål, however, in his "Enumeratio Hemipterorum," iii, 148 (1873), has substituted the genus *Acanthia*, Fab., for *Salda*, Fab., but this is certainly in contravention of Fabricius' idea, and therefore cannot be adopted.

REDUVINA.

NABIS ERICETORUM.

Nabis ericetorum, Scholz, Arb. u. Veränd., 113, 3 (1846), Fieb., Eur. Hem., 160, 4 (1861), Reut., Oef. k. vet. Ak. Förh., 76, 7 (1872).

Nabis dorsalis, D. & S., Brit. Hem., i, 557, 4 (1865), *nec* L. Duf., Fieb., *nec* *N. fuminervis*, Dahlb., *teste* Reuter, *l. c.*

NABIS PILOSULUS.

Nabis pilosulus, Fieb., Eur. Hem., 161, 7 (1861).

Nabis boops, Schiödte, Kroyer Nat. Tids., 3 ser., vi, 200, 147 (1867).

Stelia boops, Reut., Oef. k. vet. Ak. Förh., 95, 1 (1872).

On this species Reuter, *l. c.*, has founded his genus *Stelia*, but, as it appears to us, there is not sufficient difference of structure to establish the genus.—J. W. DOUGLAS & J. SCOTT, Lee: October, 1874.

Description of the larva, &c., of Anerastia lotella.—I am greatly indebted to the kindness of Mr. Charles G. Barrett for the opportunity of figuring and describing larvæ of this species, as well as their cases and cocoons, brought back by him from his visits to the coast of Norfolk,—*vide* E. M. M., vol. vii, p. 63.

The larva of this species resides in a tubular case of considerable firmness, made with grains of sand spun together; the specimens of cases that I had were irregular in form, and varying in length from $1\frac{3}{4}$ to $2\frac{3}{4}$ inches; the anterior portion of the case is rather attenuated at the mouth, but increases from thence in diameter to

one-eighth of an inch, and occupies about a third (in some instances half) the entire length of the whole; this anterior portion is followed (sometimes at an abrupt angle) by the middle part of the tube, which is about half-an-inch in length and five-sixteenths of an inch in diameter, its hinder end connected with a congeries or cluster of rather rounded and bulb-like terminal pouches, each of which is about one-eighth of an inch or little more in diameter; these appendages add a length to the central part of the tube of from three-eighths to three-fourths of an inch; the pouches varying in number from three or four to eight or nine, and are stuffed full with frass, and sometimes appear in a bursting condition; they are of a pale sulphur-yellow colour, palest next the middle part of the case, which itself is the darkest and brownest portion of the whole construction.

These cases all lie more or less in a horizontal position, their mouths in connection with the plant stems of *Ammophila arenaria*, near the crown of the roots, on which part the larvæ feed; and the depth in the sand at which they may be found varies from one inch to even three or four, as the surface shifts according to the action of the wind; and thus sometimes they are quite exposed to view, and at other times they are buried deep by the accumulations blown over them. So great are the ravages made by these little creatures, that a plant is frequently so hollowed out as even to be killed.

The larva itself is about half-an-inch in length when full-grown, moderately stout and cylindrical, but the fore-part of the back curves a little convexly downwards to the head, and the hinder part tapers through the last four segments to the anal extremity; the head is much smaller than the second segment, within which it is often partially withdrawn; all the legs rather small in proportion, though perfectly developed. In colour it is of a pale rather subdued orange-yellow, the head pale reddish-brown; down the back is a very faint reddish dorsal line, and there are two equally faint reddish transverse squarish bars on the back of each segment extending to the sub-dorsal region; the spiracles are of the ground colour, as are also the polished plates on the second and anal segments; a few soft and very fine pale hairs issue from either extremity, and from the usual tubercular situations on the body.

The larva, when about to pupate, leaves its abode, and spins *near* its tube, but not in any way *connected* with it (unless apparently by mere accident), a dumpy tubular cocoon of sand, smoothly lined with silk, half-an-inch in length, thick as a goose-quill, tapering to an obtuse point at one end, abruptly and rather irregularly truncated at the other.

Mr. Barrett sent me the larvæ on June 11th and 27th,—the moths appeared on June 29th, July 22nd to 24th, 1870.

Since the foregoing was written I have had the pleasure to receive from Professor Zeller much additional information regarding the habits of *Anerastia lotella*, as well as a translation by himself of his most able and interesting history of the insect published in the *Isis* for 1848, wherein it appears this species in Germany inhabits barren sandy places and hills,—“the moths sitting by day very closely to stalks of “grasses near the ground, and flying readily only in the evenings and mornings;”—and the larva is found to feed commonly “on the tufts of *Aira canescens*, *Festuca ovina*, and probably *Calamagrostis epigejos* and other grasses.”

From the same source I learn that *lotella* has been more recently described by Dr. Kuhn as an insect destructive to rye,—no less than twenty acres of this cereal, in a sandy field at Herzberg in Saxony, having been nearly destroyed by it in 1869.

All the localities mentioned by these continental entomologists are, of course, inland. In England, so far as I know at present, this species seems to be confined to barren sandy spots on the coast, saving the sandy fields more than twenty miles from the sea at Brandon in Suffolk, where Mr. Barrett found *lotella* quite at home; but then he tells us that these said sandy fields were, according to geologists, "a range of coast sands at a recent point of the post-glacial period."

Supposing these sandy localities in Germany to be of similar origin, *lotella* still holds its place as a littoral insect, though with a change of taste as to food-plant.—
WILLIAM BUCKLER, Emsworth: November 11th, 1874.

How to rear Bombyx rubi from the larva.—I believe there are so many who, like myself, can recal numerous instances of failure in attempts to rear this *Bombyx* from the larva, that I make no apology for offering an account of a method which has met with a very fair amount of success. I know there are other methods, which, perhaps, have succeeded as well; we have heard of keeping the larvæ quite torpid through the winter in an ice-house, of keeping them warm and quite dry at the back of a kitchen chimney, and I know by late friend, Mr. Dorville, had good success with his plan, which was to keep the larvæ in a largish box, with the cover partly of wood and partly of perforated zinc; this was half filled with peaty tufts of grass, &c., and kept all the winter, somewhat sheltered from wet, but otherwise open to the weather, so that in frost the larvæ could bury themselves for warmth, and in open weather could come up and enjoy the sun. However, the plan I am about to describe, by permission of the Rev. E. T. Daubeny, Rector of Bedhampton, Hants, differs from all the above, and may probably be found very convenient for some other Entomologists to follow; it is good to have a choice of methods, that each may take the one suited to his circumstances.

In September and October, 1872, Mr. Daubeny collected seventeen larvæ of *B. rubi*, and acting on the hint afforded him by the situation of their habitat, he resolved to fulfil the conditions he there observed as closely as circumstances would allow: and these were highly favourable for his purpose, with a verdant lawn, open and gently sloping towards the south, and at no great distance from the shore, but sheltered on the east by a range of buildings, and from the north and west by a high wall and screen of trees; here, on a slight eminence, by the roots of a *Yucca*, was the spot that suggested itself as best for perfect drainage, and exposure to the sun.

Accordingly, the larvæ were all established together on the short turf under a garden hand-glass with a moveable top, the frame of the glass being sunk into the ground to a depth of about three inches to prevent escape, and they were fed with heather:—of course some pains were taken to keep their dwelling in a wholesome condition, and fresh heather was duly supplied until they had ceased to feed, and, indeed, even afterwards, at intervals, all through the winter, and this proceeding, together with an occasional shifting of the top of the glass, promoted ventilation and prevented mouldiness; and opportunity was taken to notice that the larvæ formed for themselves hibernacula in little cavities hollowed out in the turf close to the roots of the grass.

As spring came on, a few larvæ began to appear on sunny days amongst the grass, which had grown almost too high for the hand-glass, and on the 21st of March, 1873, Mr. Daubeny determined on clearing it out; and while doing this, it struck

him that some of the larvæ still asleep on the damp earth ought to wake up, as the weather was bright and sunny, and thinking they must have had enough moisture during the winter to prevent their bodies being reduced, he removed them to another sunny spot, and placed them again under the glass, but with a thick piece of board underneath them to prevent any more evaporation; a handful or two of short grass was thrown in a heap upon the board, and the larvæ now became lively and strong, basking in the sun's rays until the 24th of the month, by which time most of them had disappeared beneath the grass, and four or five cocoons could just be discerned amongst it.

On the 28th I had the pleasure, myself, of seeing them, and felt much satisfaction in the inspection of the occupants of this grass, which had now become dry and matted together into a flattish mass thickly interspersed with the long, brown cocoons woven within it. On looking at the spot where they had wintered, I chanced to detect a very fine larva, which had escaped notice when the rest were removed, apparently just waked up and beginning to move, being not so far advanced as those which had already pupated: after this, no further trouble was taken with them, and the net result was as follows: four larvæ found dead before winter from ichneumons; three dead in spring, without attempting to change; two dead in pupæ, one of them from having been disturbed in spinning; and eight moths bred between April 29th and May 17th, namely, two males and six females.—*Id.*, *December 9th*, 1874.

Review.

SUPPLEMENT TO HARVESTING ANTS AND TRAP-DOOR SPIDERS; by J. TRAHERNE MOGGGRIDGE, F.L.S., F.Z.S. 8vo, pp. 157—304. London: L. Reeve & Co., 1874.

Simultaneously with the announcement of the publication of this work appeared the notice of the death of its lamented author, at the early age of 32. Mr. Moggridge, owing to extremely delicate health, had, for several years, been compelled to pass the winter at Mentone, where he died on the 24th November. Although best known as an enthusiastic botanist (and the author of "Contributions to the Flora of Mentone"), he showed keen powers of observation in other departments; and, during the last few years of his life, he especially directed his attention to the habits of various species of ants and spiders that abounded in the vicinity of the place to which he was annually a forced exile. The results of these observations he published two years ago, and the present work is a supplement thereto. He has proved, we think incontestably, that the command to "go to the Ant, &c.," is not so metaphorical as some commentators of Holy Writ, basing their opinions only upon the Ants of more northern regions, would have us to suppose. He found that in the genial climate of the Riviera, at least two species of the native Ants *do* store seeds of various plants, and have the means, by some process not yet satisfactorily explained, of preventing their germination.

We have not space to quote from Mr. Moggridge's works, but heartily recommend them to the notice of our readers. His observations upon Trap-door Spiders are of the highest scientific interest, and the "Supplement" mainly relates to them, illustrated by plates from the author's drawings, with descriptions of the species by the Rev. O. Pickard Cambridge. One of the most curious facts is that some of these Spiders form "branched" nests, *i. e.*, there are two surface openings, each furnished

with its characteristic "trap," the channels uniting at no great depth. One of the figures of such an arrangement gives the idea of a longitudinal section of the tubes of a binocular microscope.

Hundreds of our countrymen now resort every winter to the shores of the Mediterranean, and it is to be deplored that so few of them seek to counteract the tedium of absence from home, and ill-health combined, by observations upon the prolific natural history of the district: and however much we may rejoice that an Englishman (perhaps we ought to say, more correctly, a Welshman) has been the means of bringing so many interesting facts to light, we regret, none the less, that the native entomologists of the South of Europe should allow a foreigner to teach them the proper use of their eyes.

ENTOMOLOGICAL SOCIETY OF LONDON: 16th November, 1874.—J. W. DUNNING, Esq., M.A., F.L.S., Vice-President, in the Chair.

The following gentlemen were elected Subscribers to the Society, viz., R. E. Bull, Esq., 85, Milton Street, Dorset Square; F. Fitch, Esq., Highbury New Park; and H. D'Arcy Power, Esq., 8, Manor Terrace, Camberwell.

Mr. Higgins exhibited rare species of *Cetoniidae* from Borneo, including *Lomaptera Higginsii* (O. Janson), the extraordinary dynastiform *Westwoodia Howittii* (Castlenau), and a smaller insect, which it had been suggested might be the female of this, but such a notion appeared very improbable.

Mr. Grut exhibited a collection of fine species of *Lepidoptera*, sent by Mr. Gooch from Natal for determination.

The Rev. O. P. Cambridge sent notes on the curious spider's nest exhibited at the last meeting. It was unknown to him; and but for the fact that Mr. Ward stated that the spider made a symmetrical (geometrical) web, he should have considered it to be the work of *Agelena*. He thought the sand was used to protect the eggs and young from the attacks of parasites. Mr. F. Smith reminded the meeting that the mud coating of the nest of *Agelena brunnea* did not preserve that species from parasites, as he had often bred species of *Pezomachus* from the nests, but he considered these latter were attacked before the outer coating of mud was added.

Mr. Champion exhibited rare species of British *Coleoptera*, including *Apion Ryei* (see ante p. 128) from the Shetlands, *Abdera triguttata* from Aviemore, *Ly-mexylon navale* from Dunham Park, Manchester, *Athous subfuscus* from the Shetlands, *Sylvanus similis* and *Apion sanguineum* from Esher.

SOUTH LONDON ENTOMOLOGICAL SOCIETY.—The Third Annual Exhibition of this Society took place in St. Mary's Schools, Newington, by permission of the Managers, on Wednesday, December 9th, 1874. The room, though large, was inconveniently crowded, upwards of 600 persons testifying to their interest in Entomology by inspecting the numerous cases of insects on view. As usual at these exhibitions, British *Lepidoptera* occupied the largest space, the contributors being Messrs. Wellman, Farn, Allin, Barrett, Boden, Bolger, Chaney, Chitty, Cowley, Ficklin, Jones, Kennel, Lockyer, Lucas, Miller, Primmer, Tugwell, Shearwood, Oldham, S. Webb, West, and Williams. These gentlemen supplied nearly seventy cases of bred, rare, and local species, and many striking varieties. *Lepidopterous* larvæ and pupæ were also well represented in Messrs. Wittick and Hoccy's cases.

Messrs. Lockyer, Power, Richardson, and Shearwood lent cases of brilliant exotic *Lepidoptera*, while Mr. Jenner Weir's case of insects of this order containing specimens to illustrate "mimicry" excited great interest.

There was also a remarkably fine collection of *Coleoptera*, exhibited by Messrs. Bryce, Bull, Champion, Marsh, and West.

Several other orders of insects were represented, as follows:—Mr. Hillman contributed a case of galls, and a case of economic entomology, illustrating insects injurious to vegetation; while Mr. Marsh supplied *Ichneumonidæ*, and Mr. Power lent a case of anatomical dissections; Mr. Bull showed *Orthoptera*, and Mr. McLachlan kindly lent four cases of brilliant exotic *Neuroptera*.

Microscopes added considerably to the extent of the exhibition.—J. P. B.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from p. 156).

Since the notes upon *Eupæcilia udana* went to press, I have received the following communication from M. E. L. Ragonot of Paris.

"M. Perris has sent me several larvæ (of *udana*) preserved in "spirits of wine, from which I take the following description: Length, "8 mill. Bone colour or pale reddish-brown, the dorsal vessel darker, "ordinary spots concolorous, small, raised, shining. Head: plates on "the second and anal segments, and claspers, amber colour; mouth "and ocelli dark brown. Body cylindrical, attenuated at each extremity, "living (as M. Perris informs me) in the stems and petioles of the "leaves of *Alisma plantago*, boring a gallery in the interior. It changes "to a pupa *in situ*, after having spun a slight cocoon of grey silk."

Eupæcilia Geyeriana, H.-S.—Hitherto mixed with *udana*, Gn., under the name of *griseana*. A description will therefore be useful.

Alar exp., 5–6 lines.

Head and palpi ochreous. Antennæ brown. Fore-wings shining pale yellowish-ochreous, with rich brown markings, consisting of an oblique streak near the base of the dorsal margin, and a very oblique fascia in the middle of the wing, from the upper part of which a streak is given off which reaches the anal angle, thus forming a broad inverted Y, within which is a small dark brown triangle on the dorsal margin. There is also before the hind margin a second fascia, ill-defined, but often uniting with the posterior arm of the Y. Cilia ochreous, spotted with brown. Hind-wings grey with whitish cilia.

Allied to *udana*, Gn., but with narrower and more shining fore-wings, far more richly clouded with brown towards the apex. Allied also to *Mussehliana*, Tr., which, however, has no well-defined fasciæ as in this species.

Agrees well with Herrich-Schäffer's fig. 91. Found rather commonly in the fens of Norfolk, and probably in those of Cambridge-shire, flying among *Pedicularis palustris*, in May, June, and August.

Eupæcilia Manniana, F. v. R.—Also confounded apparently with *griseana*, and perhaps also with *affinitana*. It was, however, recognized as a distinct species by Messrs. Hodgkinson and Gregson, who took several specimens in Cumberland in 1869 and 1870, and was recorded in Newman's Entomologist for May, 1870, under the name of *Argyrolepis luridana*, Gregson. Under this name it was also noticed in the Entomologist's Annual for 1871, but the description, as there quoted, being hardly intelligible, I think it best to add a description taken from specimens lent me by the Rev. Henry Burney and Mr. Sang. Mr. Burney's are the original specimens taken by Mr. Hodgkinson (who has also obliged me with the sight of another taken by himself in May, 1872), and Mr. Sang's was taken by him near Darlington.

Alar exp., 6 lines.

Head, palpi, and thorax pale ochreous-yellow, darker at the sides. Fore-wings pale yellow with brownish-ochreous markings, consisting of a short streak along the costa at the base, an oblique dash from the base of the dorsal margin, an oblique, narrow, entire, sharply outlined central fascia, which emits a delicate line from its posterior margin, near the costa to the anal angle. In the enclosed space is a broad, flat, triangular spot on the dorsal margin. A second fascia or streak proceeds from the costa before the apex obliquely to the hind margin. Cilia pale yellow. Hind-wings pale grey, darker in the female.

It resembles at first sight a miniature *Argyrolepis cnicana*, for which reason I suppose Mr. Gregson placed it in that genus. Its nearest allies in this country appear to be *Eupæcilia Geyeriana* and *affinitana*.

I sent Messrs. Burney and Sang's specimens to Professor Zeller, who writes in reply:—"This is the species named for me by Fischer von Röslerstamm when he visited me—*Manniana*. Under this name "I received it several times myself from Mann himself, who, I should "think, must know the species named in his honour. To this decision, "answers F. v. R.'s fig., Beitr., pl. 51. It is a rare species, occurring "in southern countries, but also in Silesia."

I give this decisive opinion of Zeller's in full because Heinemann appears to have mistaken *udana*, Gn., for this species, and his description consequently does not agree with it. This mistake has been followed up by other continental Lepidopterists, thereby leading Mr. McLachlan to quote them as identical. Dr. Wocke, however, gives them as distinct, and Herrich-Schäffer's figure of *Manniana* represents a species unknown to me.

Manniana, F. v. R., is certainly rare also in this country, but widely distributed. Besides the localities already mentioned, I took a worn specimen myself some years ago in a damp wood-path near Haslemere, Surrey, and have lately seen one from Devonshire, and several from Wilts, taken by Mr. E. Meyrick.

M. Jourdheuille's statement that the larva of this species feeds in stems of *Mentha sylvestris* may be intended to refer to *notulana*.

Eupæcilia rupicola, Curt.—In my opinion, Herrich-Schäffer's figures 86 and 87—*humidana*—do not represent this species, but fig. 85—*phaleratana*—does pretty correctly, although fig. 84 is not satisfactory.

M. Jourdheuille says that the larva of *rupicola* feeds in the flowers of *Chrysocoma linosyris*, hibernating within them; but this is evidently in error for *subroseana*, Haw. Zeller confirms Mr. McLachlan's statement that it only occurs among *Eupatorium*.

Eupæcilia vectisana, Westwood.—Wocke includes this species in his Catalogue as doubtfully distinct from *affinitana*. In this he probably followed Mr. Doubleday, who is now convinced of their distinctness and has introduced *vectisana* as a separate species in his last Supplement to his list. That they are distinct, I have not a shadow of doubt; but as yet the food-plant of the larva of *vectisana* has not been ascertained. In this country it is almost confined to salt marshes on the coast, but in Germany it is found in marshy meadows among *Triglochin palustre*. These German specimens are so much darker, and have the delicate silvery gloss so much more distinctly than ours, that it was only by the comparison of long and variable series that I could satisfy either Prof. Zeller or myself of their identity. This form is known, I believe, in Germany as *Geyeriana*, H.-S., but is much smaller than that species, and very different both in form and colour. I believe, however, that it is Heinemann's *Geyeriana*. I have just (since writing the above, in fact) received some remarkable evidence of the identity of these two forms. Mr. Machin has taken a specimen of our ordinary coast form in the Hackney marshes, close to London; and among some insects taken by Lord Walsingham in the Cambridge-shire fens, I find a similar specimen, and also two of the strongly marked variety. This is peculiarly satisfactory.

Wocke introduces *vectisana* a second time into his list as a synonym of *Mussehliana*, Tr., giving Wilkinson and Stainton as authorities. It is perhaps in some degree allied to this species, being, like it, usually destitute of a well-defined central fascia.

Eupæcilia affinitana, Dougl.

Eupæcilia flaviciliana, Dbld.—Apparently unknown—or confounded with *roseana*—on the continent. Wocke, following Heine-mann, quotes Wilkinson's and Stainton's descriptions as synonymous with *epilinana*, Zell., but erroneously, *epilinana* being a broader winged insect with pinkish-ochreous fore-wings, and occurring among flax, on the seeds of which the larva feeds.

Eupæcilia roseana, Haw.

Eupæcilia subroseana, Haw.—Haworth's description of this species, though short, is pretty satisfactory, but Wilkinson's evidently refers to the richly coloured northern variety of *ciliella*, Hübn., as also do his localities, but upon this subject there are some notes in the Ent. Mo. Mag., vol. v, p. 244, and I need not therefore go into it again.

Dr. Wocke overlooks Wilkinson's description, but (incorrectly) sinks *subroseana*, Haw., into a variety of *roseana*, Haw. In the form of its wings it seems to me more nearly allied to *rupicola* than to the pointed-winged group of which *roseana* may be considered the type.

It appears in this country to be confined to the woods of the south, and is far from common.

Eupæcilia Heydeniana, H.-S.—Recorded and briefly described by Mr. McLachlan, in Ent. Ann., 1869, p. 90, and further noticed in Ent. Mo. Mag., v, p. 245.

Dr. Wocke appears to insert this species twice over in his list, since this is certainly *Heydeniana*, Hein., which he makes synonymous with *implicitana*, H.-S.

According to M. Jourdeuille's Calendar, the larva feeds in flowers of *Gnaphalium*, *Pyrethrum inodorum*, *Tanacetum*, *Artemisia* and *Solidago*, and it was about the last named plant that I used to take it at Haslemere.

I am strongly of opinion that Wood's fig. 1144—*ruficiliana*—represents this species, and if so his name would have priority.

Eupæcilia anthemidana, Curt.?—Nothing further has been elicited about this species since Mr. McLachlan wrote in 1868, but I think it very doubtful whether the species found in Norfolk, feeding in seed-heads of *Erigeron acre*, and having a white head and palpi, is the same as that bred by Curtis from *Anthemis*, which is described as having cream-coloured head and face, inclining to rosy.

It does not, however, seem advisable to erect the *Erigeron* feeder into a new species until the true *anthemidana* (if distinct) be re-discovered.

Dr. Wocke omits this species from his list, but Heinemann regards it as synonymous with his *Heydeniana*—a very different species.

It seems to be widely distributed in this country, having been found commonly near Shoreham, in Kent, and near London, as well as at Lord Walsingham's original locality near Brandon, on the borders of Norfolk and Suffolk, and last season I found a few specimens close to Norwich. It does not seem to have been observed on the Continent.

Eupæcilia ruficiliana, Haw.—This has already been corrected by Mr. McLachlan, as well as by Dr. Wocke, to *ciliella*, Hübn., with which Haworth's brief description agrees very well.

It appears to feed on various species of *Primula*, for Prof. Zeller found it commonly in the Alps among *P. farinosa*, and this will perhaps account for its occurrence on high mountain districts in Scotland. Mr. Eedle, however, assures me that he takes the large, handsome, Scotch form among Bog Asphodel (*Narthecium ossifragum*).

There exists in Norfolk a dwarf form, rather brightly marked, and with the fore-wings regularly irrorated with grey scales, which I have been strongly inclined to consider distinct, but it seems impossible to find any reliable distinctive character, and I therefore bow to Prof. Zeller's opinion that it is merely a local variety, dwarfed by unusual food (probably *Anagallis tenella*, among which it is found on the boggy heaths). Wilkinson's description of *ruficiliana* may have been made from similar specimens.

Eupæcilia Degreyana, McLachlan.—Described by Mr. McLachlan in the Ent. Ann., 1869, p. 91, and further noticed in Ent. Mo. Mag. vol. v, p. 245.

Omitted by Dr. Wocke, who has, by some accident, entirely overlooked Mr. McLachlan's paper.

I have found it commonly near Norwich frequenting *Plantago lanceolata*, but have failed to find the larva. See Ent. Mo. Mag., vii, p. 158.

The Rev. H. Burney has, however, sent me a specimen which seems unquestionably to belong to this species, which was reared from a larva found feeding in seeds of *Linaria vulgaris* by Mr. Bree, a good many years ago.

I have merely placed this species at the end of the genus for convenience in following Wilkinson's arrangement; that of Mr. McLachlan is far more natural, as this species approaches very near to *roseana* and *flaviciliana*, as well as to *ciliella*.

Lozopera dilucidana, Steph.—Although this species is reared in plenty from stems of *Pastinaca sativa*, it is not yet satisfactorily ascertained whether it feeds entirely in them, or whether it is a seed-feeder when young, like its allies.

Lozopera Francillana, Fab.—Prof. Zeller asks whether these two are not variations of one species, and whether we do not find intermediate specimens? As far as my experience goes, they are totally distinct, and I never saw an intermediate specimen, neither do they seem to occur in the same localities. *Francillana* used to be common on the Dublin coast, but I never saw *dilucidana* there.

M. Jourdheuille says of *Francillana*, "Larva in dead stems of 'previous year's *Eryngium campestre*,'" this must be a mistake for some other species. It has been bred from larvæ feeding on the seeds of *Daucus carota*.

Lozopera Smeathmanniana, Fab.—M. Jourdheuille says that the larva feeds in flower-heads of *Achillea millefolium*, and this is confirmed by Mr. Machin, who tells me that it leaves the seed-heads before spinning up. It has also been reared from seed-heads of *Centaurea nigra* and other *Compositæ*.

Lozopera straminea, Haw.—Better known in Germany by the later name, *Tischerana*, Tr. The larvæ feeds in seed-heads of *Centaurea*, and has been known to spin up in the root.

Lozopera alternana, Steph.—M. Guenée proposed to alter this to *gigantana*, there being another *alternana* in another genus, and this is followed by M. Doubleday in his list. Stephens' name must, I think, be retained.

This is an exceedingly local species. Prof. Zeller expresses doubt of its distinctness from *straminea*. I hope to convince him at a future time by the sight of a larger series than I have been able to send as yet. Its larva feeds in flower-heads of *Centaurea scabiosa*, on the south coast, and has been reared by Messrs. Doubleday and Bond.

Xanthosetia hamana, Linn.

Xanthosetia Zoegana, Linn.

Dapsilia rutilana, Hübn.

Argyridia dipoltella, Hübn.—Zeller says, "Larva in umbels of '*Achillea millefolium* in October.'"

(To be continued.)

DESCRIPTION OF A NEW SPECIES OF *PROCTOTRYPIDÆ*
FROM CEYLON.

BY A. O. WARD.

MYMAR TAPROBANICUS, *sp. n.*

♀. *Ochraceus, subtus pallidior, antennis pedibusque concoloribus, oculis rufis, sub-hemisphæricis; alarum anticarum pars dilatata hyalina, dimidio apicali fusco, marginibus ciliatis; alæ posticæ longæ, setacæ; petiolus sat validus, coxis posticis longior; aculeus retractilis, subæsertus.*

Habitat Ins. Ceilanum.

Long. corp. .02 unc. ($\frac{1}{4}$ lin. anglic.); *Alar. exp.* .6 unc. ($1\frac{1}{2}$ lin.).

Differs from the European *M. pulchellus*, Curt., in the following particulars: the eyes are red, the antennæ of the same colour as the rest of the body; the scape is thicker than the flagellum, but slightly shorter than the fourth joint; and the petiole of the abdomen is stouter (rather thicker than the scape).

The apical half of the spatuliform part of the fore-wings is obfuscated, being darkest towards the apex, and the marginal ciliæ are longer than the width of this expanded portion; in addition to them, there are two rows of shorter setæ on the surface and towards the anterior margin of the wings. The linear non-spatulate hind-wings are two-thirds the length of the anterior pair. The apical joints of the tarsi and antennæ are darkened. The limbs and antennæ are clothed with sparse short setæ, spirally arranged on the latter.

This insect was sent from Colombo mounted in balsam, by Mr. Stanniforth Green, who has devoted considerable attention to this method of mounting entire insects, and with success. He finds that the balsam in the hot climate of Ceylon dries rapidly; and if, as he says, it is impossible to transmit delicate specimens mounted in the usual way on card, Mr. Green's method deserves great attention, even though we lose by it the power of inspecting specimens from all points, and can in some instances only obtain the symmetrical dorsal view to which most entomologists are accustomed.

Parkfield, Putney, S.W.:

January, 1875.

NOTES ON BRITISH *HOMOPTERA*, WITH DESCRIPTIONS OF ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

TYPHLOCYBIDÆ.

In Silbermann's "Revue," 1833, Germar characterised a group of species of *Homoptera* as a genus, under the name of *Typhlocyba*, and in January of the same year, in the first volume of the "Entomological Magazine," Curtis characterised the same group under the generic name of *Eupteryx*. Germar's definition was very meagre, and Curtis's was also insufficient, and I am not sure which had the claim of priority, although it is most probable it was due to *Eupteryx*. But in 1837, in his "British Entomology," Curtis accurately defined *Eupteryx*, giving characters, illustrated by figures, derived in part from the neuration of the elytra and wings, and confirming *Cicada picta*, Fab., as the type, but without pointing out that all the species he associated did not conform thereto. Therefore, when the generic sub-division of the group, according to more precise modern ideas, became requisite, it was necessary to restrict *Eupteryx* to the species which agreed with the characters given, and to relegate the others meanwhile to *Typhlocyba*. Several authors, however, have not done this; Westwood, in his "Introduction" (1840), quotes *Typhlocyba*, Germ., in its entirety and as equivalent to *Eupteryx*, Curt.; Zetterstedt, in his "Insecta Lapponica" (1840), gives a new name—*Cicadula*—to the genus, including some species not belonging to the family, although he quotes *Typhlocyba* as a synonym, but he divided it into eight sections without sub-generic names. Now, it follows that if Zetterstedt's name, *Cicadula*, be retained at all, it can only be for the first section of his genus, comprising two species, *Cicada 4-notata*, Fab., and *C. strigipes*, Zett.; but both of these are referred to the genus *Thamnotettix* by Fieber, who, after passing over the first section, has made *Cicadula*, Zett., the generic receptacle for certain species of the second section only.

In the Verhandl. k. k. zool.-botan. Gesells. Wien, 1865, Fieber distributed the *Typhlocybidæ* among ten genera, then characterized, viz.: *Compsus*, *Erythria*, *Notus*, *Chloria*, *Kybos*, *Anomia*, *Zygina*, *Idia*, *Typhlocyba*, and *Eupteryx*, all of them, except the last two, being new. *Eupteryx* is here properly typified, according to Curtis's characters, by *Cicada vittata*, L., and *C. urticae*, Fab.; and to *Typhlocyba* are referred all the species left after his generic selection; *Cicada lineatella*, Fall. (= *C. geometrica*, Schrk.), being the type.

In the Ent. Mo. Mag., 1867, Marshall described all the then known British species under the name *Eupteryx*, Curtis, but gave sectional characters.

In his "Cicadinen," 1868, Kirschbaum puts all the species he describes into three sections of *Typhlocyba*, Germ.

In his "Cicadaria," 1871, Dr. J. Sahlberg has, in the main, adopted Fieber's scheme of genera, modifying it, however, by uniting *Anomia*, *Zygina*, *Idia*, and *Typhlocyba*, under the name of *Typhlocyba*, and *Chloria* and *Kybos* under the name of *Cicadula*, Zett. The former set of these modifications, founded upon consideration of the small amount of difference in the neururation of the wings, as shown by Fieber himself (and in some cases admitted by him subsequently), is, I think, justifiable; but the adoption of the name *Cicadula* for part of Zetterstedt's section "b" cannot be maintained, for the reasons stated above, and on account also of the generic discordance among the species cited. The figures of the neururation of the wings, on which the genera are chiefly founded, are excellent.

In 1872, Fieber published his "Katalog der europäischen Cicadinen," in which, on the ground of prior use, he alters *Compsus* to *Alebra*, and *Chloria* to *Chlorita*; and he unites *Erythria* with *Notus*, and *Idia* with *Zygina*. But he relinquishes his former correct idea of *Eupteryx*, Curt., which he calls *Typhlocyba*, Germ., refers the species previously associated under the latter name to *Anomia* and *Zygina*, and drops *Eupteryx*, Curt., altogether; fortunately, these latter arbitrary propositions appear only in a Catalogue, and without show of justification, but it is necessary to notice them to prevent misconception by those who follow.

(To be continued).

ON THE ARRANGEMENT OF THE BRITISH ANTHOMYIIDÆ.

BY R. H. MEADE.

The small and sombre flies comprised in the Dipterous family *Anthomyiidae* are very little known to British entomologists; but their numbers, both in species and individuals, are so great in this and other cold and temperate climates, that they deserve more attention than they have received. They are confessedly difficult to determine; but this very difficulty adds to the interest which they should excite, and

is truly more apparent than real; for, though many species are exceedingly alike, when closely examined, good distinctive characters may mostly be found for their separation.

To facilitate their examination and description, it is imperatively necessary to sub-divide them into groups or genera; and though some of these must be more or less artificial, this is a small evil in comparison with leaving 200 or 300 species in one genus.

It is for the purpose of calling the attention of British entomologists to this family (which has been most carefully studied upon the Continent) that I venture to publish a few remarks on the characters of the principal generic sub-divisions into which our indigenous species may be classed, and I shall endeavour to arrange them, as far as possible, into natural groups.

Meigen, to whom all Dipterologists owe so much, first detached these flies from the great tribe of *Muscidæ*; but he retained almost all the European species in one genus, which he named *Anthomyia*. In his seventh or supplementary volume, however, published in 1838, he raised them to the rank of a separate family, and adopted some of the new genera which had then been formed.

Dr. Robineau Desvoidy, in his "Essai sur les Myodares" (1830), first sub-divided this family (which he named *Mesomydæ*) into a great number of small groups; but he went as much too far in the formation of genera as he did in the sub-division of species, for both are characterised by such insufficient and undecided characters, that they are practically useless. Macquart* reduced the chaos created by Desvoidy into something like order, and his genera (which were made with great skill) have been adopted, with various modifications, by most subsequent authors, with the exception of Zetterstedt, who, in his great work upon the *Diptera* of Scandinavia, includes almost all the *Anthomyiidæ* in two genera; one characterised by having entirely black legs, and the other by the legs being partly or wholly yellow.

Rondani, the most recent systematic writer upon the *Anthomyiidæ*, has, in his work upon the Italian *Diptera*, very carefully and elaborately revised the genera into which they may be sub-divided, adding a good many new ones, and altering the names of others; and, although he may have carried his alterations a little too far, he has done much valuable work.†

The *Anthomyiidæ* may at once be known from the typical flies

* Hist. Nat. des insectes diptères, 1835.

† Schiner's valuable work upon the *Diptera*, in the "Fauna Austriaca," may also be mentioned.

(*Muscides*), as the house-fly and blue-bottle, by having the first posterior cell of the wings open at its extremity, the fifth longitudinal or præbrachial vein running straight or nearly straight to the margin of the wing, while it is curved or bent at an angle towards the fourth or cubital vein in the true *Muscides*. They may also be distinguished from the more feebly developed or acalypterate families of *Muscidæ* either by the approximation of the eyes of the male, or by the size of the alulets, which, though sometimes small, are always very distinct in the *Anthomyiidae*, even in those genera in which the eyes are widely separated in both sexes.

It is of importance to determine which are the most constant, and therefore most valuable points of structure, for the formation of genera.

The relative size of the scales of the alulets may first be mentioned. In the more typical species they are generally tolerably large, and the lower scale projects considerably beyond the upper; but in many others they are small, and nearly or quite of the same size, so that one scale completely covers the other.

In some large groups the arista or style of the antennæ is hairy or plumose, in others only tomentose or bare.

In many species the eyes are hairy, in a still greater number naked.

In some divisions the abdomen is always spotted, or provided with sub-anal appendages.

The body and legs are often furnished with various teeth, spines, hairs, and bristles, which are generally constant in form and position, and become very valuable characters for the formation of genera, when they are similarly placed in a number of allied species. I am indebted to Mr. Verrall for pointing out to me that there are two rows of dorsal bristles always present upon the thorax, in addition to others scattered on the sides, in which the number of setæ is always constant in individuals of the same species. There are two (in a few kinds, only one) in front of the transverse suture, by which the thorax is intersected, in a longitudinal line with either three or four strong bristles behind it.

In addition to the features I have mentioned, the length and direction of the veins of the wings is very characteristic of certain groups, as is also the shape of the head and abdomen; and two genera may be known, one by the peculiar shape of the proboscis, and the other of the palpi.

I will now endeavour to arrange the genera in a tabular or analytical form, and then make a few illustrative remarks upon each genus.

GENERA ANTHOMYIDARUM. TABULAR ARRANGEMENT.

- A. Eyes approximate or contiguous in the males, but distant in the females.
 B. Scales of the alulets unequal in size, the under one being larger than the upper.
 C. Arista plumose, the hairs on the style sometimes short but always distinct.
 D. Eyes hairy.
 E. Alulets large.
 F. Abdomen somewhat hemispherical, and borders of facial groove setigerous
 FF. Abdomen generally oval, borders of facial groove without bristles
 DD. Eyes naked, or very slightly pubescent
 G. Abdomen spotted and mostly oblong
 GG. Abdomen without distinct spots, and furnished with sub-anal appendages in the male
 H. Proboscis elongated and bent forwards, with a hooked and pointed extremity
 CC. Arista pubescent or bare.
 I. Anterior femora toothed in the males.
 J. Eyes hairy
 JJ. Eyes naked, or only slightly ciliated
 II. Anterior femora plain in the males.
 K. Eyes hairy
 KK. Eyes naked.
 L. Posterior tibiae curved in the males
 LL. Posterior tibiae of the ordinary form, and the middle tibiae furnished with bristles on their external as well as posterior surfaces, in addition to those at their extremities.
 M. Abdomen spotted
 EE. Alulets small, but the lower scales not quite covered by the upper.
 N. Head semi-circular, without projection of forehead or epistome.
 O. Seventh longitudinal or anal vein of the wings very short, with the sub-axillary vein curved forwards its extremity.
 P. Abdomen flattened
 PP. Abdomen narrow, cylindrical, and spotted
 NN. Head more or less angular, with forehead or epistome projecting.
 OO. Anal vein prolonged to the margin of the wing
 BB. Lower scales of the alulets entirely covered by the upper.
 P. Arista plumose
 PP. Arista pubescent or bare.
 Q. Head often large, but cheeks not inflated and setose
 QQ. Cheeks swollen and hirsute
 R. Alulets moderate in size, the lower scale longer than the upper.
 S. Palpi spatulate in form
 SS. Palpi of ordinary form.
 T. Arista plumose
 TT. Arista pubescent or bare
 RR. Alulets small, the lower scale nearly or wholly covered by the upper.
 U. Arista distinctly plumose.
 V. Abdomen with sub-anal appendages in the male
 VV. Abdomen of male without appendages
 AA. Eyes distant in both sexes.
 R. Alulets moderate in size, the lower scale longer than the upper.
 S. Palpi spatulate in form
 SS. Palpi of ordinary form.
 T. Arista plumose
 TT. Arista pubescent or bare
 RR. Alulets small, the lower scale nearly or wholly covered by the upper.
 U. Arista distinctly plumose.
 V. Abdomen with sub-anal appendages in the male
 VV. Abdomen of male without appendages
 1. POLIETES,* Rondani.
 2. HYETODESIA,† Rond.
 3. MYDEA, Desvoidy.
 4. SPILOGASTER, Macquart.
 5. HYDROPHORIA, Desv.
 6. DRYMEIA, Meigen.
 7. ONODONTA, Rond.
 8. HYDROTEA, Desv.
 9. LASIOPS, Meig.
 10. OPHYRA, Desv.
 11. LIMNOPHORA, Desv.
 12. HOMALOMYIA, Bouché.
 13. AZELIA, Desv.
 14. ANTHOMYIA, Meig.
 15. HYLEMYIA, Desv.
 16. CHORTOPHILA, Macq.
 17. ERIPHIA, Meig.
 18. LISPA, Latreille.
 19. CARICEA, Desv.
 20. CÆNOSIA, Meig.
 21. OPHOGASTER, Rond.
 22. MYCOPHAGA, Rond.

* Genus *Macrocoma* of Desvoidy. This name, however, had been previously given to another genus of animals.

† This corresponds in part to the genus *Arista* of Desv. and

POLIETES.—This genus was separated by R. Desvoidy from the *Anthomyiidae* and placed among the *Muscides*, from the resemblance which the two species contained in it bear to some of the more highly developed flies; but it possesses the essential character of the family in a very high degree, the fourth and fifth longitudinal veins diverging considerably from each other at their extremities, thus leaving the first posterior cells of the wings widely open. Of the two species which it contains, one is the well known *Musca lardaria*, Fab., in size and form much like the common blue-bottle fly, but lighter and greyer in colour; and the other the *Musca albo-lineata*, Fall., the *Macrosoma floralis* of Desvoidy, which closely resembles *Cyrtoneura hortorum* in colour and markings.

HYETODESIA.—This includes all the species (except the two in the previous genus) which have plumose antennæ and hairy eyes. It corresponds to the first half of the genus *Aricia* of Macquart and others. The typical species are mostly of considerable size, have an oval abdomen, and form a very natural group; but a good many aberrant species of small size and oblong form are obliged to be associated with them.

(To be continued).

DESCRIPTION OF A NEW SPECIES OF *BRASSOLINÆ* FROM BOGOTÁ.

BY W. L. DISTANT.

OPSIPHANES BOGOTANUS, n. sp.

Wings above, chocolate-brown, front wings with first half of costal area of a more rufous-brown, from which, near the base, a semi-circular patch of the same colour extends over about one-third of discoidal cell to base of internal area, a somewhat irregular band of yellowish-white extending from costal margin immediately past extremity of cell to external angle, widening below cell and terminating in a smallish sub-marginal patch; three sub-apical white spots. Hind-wings with abdominal half of a more rufous-brown, which occupies lower half of cell and extends through second median interspace to abdominal area which is yellowish-white, two sub-marginal, somewhat obscure, narrow waved bands of darker brown.

Wings below very similar to *O. Crameri*, Felder, and to *O. Orgetorix*, Hewitson.

Expanse of wings, 4 in. 2 lin.

Hab.: Bogotá.

A female, apparently of this species, is in the National Collection from Venezuela, and in colour and markings somewhat closely resembles *O. Crameri*, Felder.

Streatham Cottage, Buccleuch Road,
West Dulwich, S.E.:
January 2nd, 1875.

DESCRIPTION OF THREE NEW SPECIES OF *TRIGONURUS*.

BY D. SHARP, M.B.

Dr. Leconte has recently described a number of the more interesting of the new species of *Coleoptera*, discovered by the lamented G. R. Crotch, in California. Among these descriptions are to be found two new species of the important genus *Trigonurus*,—noteworthy for the New-world Coleopterous fauna. I have for some years possessed three species of *Trigonurus* from California, and supposed, on receiving Dr. Leconte's paper, that I should find two of them to be his new species. Such, however, proves not to be the case; for, after examination of Leconte's descriptions, I am obliged to conclude that I possess neither of his two species; and I think it will be of interest, therefore, to publish descriptions of the three species in my collection.

TRIGONURUS RUGOSUS, n. sp.

Castaneus, opacus, sub-parallelus; thorace sub-quadrato, basi bisinuato, angulis posterioribus leviter acutis; elytris dense, fortiter, ruguloso-et striato-punctatis, apice recte truncatis; abdomine crebre fortiter punctato.
Long. corp. 5 mm.

Head coarsely and closely punctured, with a deep transverse impression between the insertion of the antennæ. Thorax very nearly as long as broad, the sides a little narrowed in front of the middle: it is densely and coarsely punctured, with a longitudinal impression along the middle, which does not reach the base; and it has also on each side a rather large but ill-defined basal impression just within the angles. The elytra are one and a half times the length of the thorax, but only slightly broader than it; they are very coarsely punctured, and the punctures are arranged in rows, but they are very close together and the interstices are irregular or rugulose; the hind-body is rather closely and coarsely punctured.

The dense coarse sculpture rendering the upper surface opaque, and the truncate apex of the elytra, make this species very easily distinguishable from all others of the genus.

In its structural characters this species closely approaches *T. Mellyi*; nevertheless, a difference exists between the two in the structure of the prosternum; in *T. rugosus*, the posterior side piece of the prosternum forms a true triangle; it is a little further removed from the front piece, the result of which is that the front coxæ of *T. rugosus* are rather more enclosed behind, but are more uncovered at the sides than in *T. Mellyi*; should this structure be found similar in the other American species, it may be sufficient to warrant the establishment of a separate genus. In both *T. Mellyi* and *T. rugosus*, a trochantin of the front coxæ is very distinctly visible.

TRIGONURUS EDWARDSI, n. sp.

Castaneo-piceus, nitidus; thorace sub-quadrato, minus dense et minus fortiter punctato, basi truncato, angulis posterioribus rectis; elytris fortiter regulariterque striato-punctatis; abdomine subtiliter punctato, apice lævigato.
Long. corp. 4 mm.

Head sparingly and indistinctly punctured, with a transverse impression between the insertion of the antennæ. Thorax rather broader than long, straight at the sides, but narrowed near the front angles; the punctuation of its upper surface is irregular, it being coarse at the base, and especially distinct and coarse in the two basal impressions, it is fine on the disc and wanting at the front angles. It has a longitudinal channel abbreviated in front and behind. Elytra about one and a half times the length of the thorax, extremely strongly and regularly punctured; the punctures arranged in very distinct and regular rows, but not placed in grooves, each puncture is very distinct and well defined, the interstices being narrow, there are seven of these rows; the seventh is entire, and outside it is a very abbreviated eighth row. The hind-body is very sparingly and finely punctured, the apical segments indeed are very nearly impunctate.

This species is clearly closely allied to *T. cælatus*, Lec., but I believe the punctuation of its thorax and hind-body must be very much finer than in that species.

I have very much pleasure in naming this insect in honour of Henry Edwards, Esq., of San Francisco, to whom I am indebted for this, as also the other species here described. His liberality has supplied me with twenty specimens of *T. rugosus*, three of *T. Edwardsi*, and two of *T. Lecontus*.

TRIGONURUS LECONTUS, n. sp.

Nitidus, depressus, picco-rufus, elytris magis rufescentibus; thorace transversim sub-quadrato, basi truncato, angulis posterioribus rectis; elytris regulariter punctato-striatis, punctis minus discretis, interstitiis angustis; abdomine minus crebre sat fortiter punctato.

Long. corp. 4½ mm.

This species much resembles *T. Edwardsi*, but is broader and rather more depressed; its thorax is a little more strongly punctured, and the dorsal channel less distinct; the hind-body is more distinctly punctured. The sculpture of the elytra, however, readily distinguishes the two species; the punctures in *T. Lecontus* being placed in grooves, and the longitudinal interstices between the punctures are indistinct and not elevated.

According to Leconte's description of *T. Crotchii*, this species must be closely allied thereto; in *T. Crotchii*, Leconte says the elytra

are twice as long as the thorax, with the seventh stria fainter than the others, and abbreviated one-fifth before the base; while in *T. Leconteus*, the seventh stria attains the base, and the elytra have not quite 5 : 3 of the length of the thorax.

I have ventured to name this species in honour of the distinguished entomologist, J. L. Leconte; and I have used the trivial word *Leconteus*, in preference to *Lecontei*, a word of which the pronunciation is at least ambiguous.

Thornhill, Dumfries :

January 8th, 1875.

On the synonymy of Pleocoma staff, Schaufuss.—In the paper above alluded to (or rather immediately following it), will be found a notice by Dr. Leconte on the species of the remarkable genus *Pleocoma*, and also a description of the larva of one of the species by Baron R. Osten Sacken.

Leconte describes one of the species of the genus under the name of *Pleocoma Edwardsii*, and adds to his description the following observations :—

“This species is recognizably described, though not properly named, by Mr.

“Schaufuss (*Nunquam Otiosus*, vol. ii). The name suggested for it by

“Mr. Crotch (Check list, p. 58) is likewise inadmissible, not only because he

“gives no reason for its adoption, and because that kind of list is an improper

“place for changes in nomenclature, but for the still stronger reason, that it

“tends to perpetuate in science the memory of the political venom which

“inspired the name given by Mr. Schaufuss. I cannot express myself too

“strongly on the necessity of keeping our scientific nomenclature free

“from all personal, political, or religious prejudices or expressions of

“opinion. Such use of scientific publication, for intruding upon students

“of natural history irrelevant views respecting subjects which are not

“comprised within the domain of their researches, must be discountenanced.”

So says the renowned American entomologist; and I fully agree with his strong expressions of opinion on the contemptible nature of motives which prompt the giving of a scientific name under such circumstances as those to which he alludes. But I cannot agree with him in thinking we are justified in changing a name so given in order to mark our displeasure. The name, after it was once given, is disjoined from the motives that prompted it; and we may be sure these will be speedily forgotten, or, if remembered, it will be only to call up a smile at the childish impetuosity of the namer.

The facts of the case are briefly as follows: Schaufuss described in “*Nunquam Otiosus*” three species of *Pleocoma*, to one of which he gave the name “*P. staff*,” intending some allusion to the “Prussian general staff.” Crotch, in his Check list of N. American *Coleoptera*, cites this species in due place as No. 3365, but gives it a new name, viz., “*Pleocoma adjurans*, Cr.” and indicates in an unmistakeable manner the species he intends the name for, by adding “*staff*, Schauf.” as a synonym. Leconte afterwards proposes a third name for the same species.

Such are the facts; and the question arises, which of the three names is to be the name of the species? Is it to be called *Pleocoma staff*, *P. adjurans*, or *P. Edwardsii*?

To me, it is clear that the name given by Schaufuss, being the oldest (and it is not disputed but that the description by which it is accompanied is a sufficient one), is the correct name for the species. It is quite plain to me that we have no right to reject a name on account of the motives expressed, or unexpressed, of the giver: this, indeed, seems so clear that I think it will be generally admitted, and I will therefore say no more about it. But it may still be objected that the name *P. staff* ought to be set aside, because it is neither Latin or classical. To this I answer that the use of words other than Latin and classical ones, for trivial names, is now generally recognized as legitimate, and is expressly advocated by the late Prof. Agassiz (see note on the subject, in his "Journey to Brazil"), and by myself. Those who insist on a Latin termination can easily give this to Schaufuss' name by writing it "*P. staffa*."

I think, then, there is no question that Schaufuss' name should be adopted; but if it be not, then certainly the name *P. adjurans*, Cr., should be used. I must admit I have read with astonishment Leconte's reasons (above quoted) for setting this on one side. They appear to be three in number: first, that Crotch "gives no reason for its adoption;" under the circumstances it was clear that any reason was uncalled for. Second, "that kind of list is an improper place for changes in nomenclature;" to this I answer, that I consider it one of the *best* places to make such changes when they are necessary. Leconte's third reason is but a diluted repetition of the "motive" one I have already commented on, and need not notice further.

I hope the preceding remarks will not be considered superfluous. The principal difficulty in establishing a system of Zoological Nomenclature consists in the constant introduction of new reasons for changing names. The innovations implied by Dr. Leconte's remarks above quoted are so considerable, and his reputation is so great, that the observations I have made will not, I trust, be considered intrusive.—D. SHARP, Thornhill, Dumfries: *January 12th, 1875.*

Note on a species of Amara new to Britain.—I have no doubt that many others, like myself, have often found a difficulty in satisfactorily separating their exponents of *Amara lunicollis* and *communis*, which, to me, at least, always seemed to be connected by an intermediate form. Thomson, Opusc. Ent. v (1873), p. 529, has solved the enigma by describing a third species, *A. continua*, occurring rarely in the south-west parts of Sweden, in sandy districts (but which, as far as my small collection goes, is more abundant here than *communis*, to which it is allied).

A. lunicollis has only the two basal joints of the antennæ reddish, or pitchy, often quite dark on the upper side; the thoracic basal foveæ distinctly impressed, but the whole base obsoletely punctured; the middle tibiæ of the ♂ distinctly curved, &c.

In *A. continua* and *communis*, the three basal joints of the antennæ are testaceous-red, and the tibiæ are often ferruginous; the thoracic basal foveæ are more obsoletely impressed, but the base itself is more decidedly punctured, and the anterior angles are more produced. *A. continua* is the larger of the two, having the build of *lunicollis* (viz.: broader than *communis*, less parallel, with the elytra wider behind);

and it is readily separated from *communis* by having the marginal row of large punctures on the elytra continuous, whereas, in *communis*, these large punctures are very perceptibly interrupted about a third of the length below the shoulder. This continuous row of punctures is also found in *lunicollis*.—E. C. RYE, Parkfield, Putney, S.W.: December, 1874.

Late appearance of Cetonia aurata.—At p. 178, vol. x, of the "Entomologist's Monthly Magazine," Mr. Scott records the appearance of *Cetonia aurata* on the 15th October. I have now to chronicle an even later date for that species, as I found a specimen of it at ivy-bloom, in the day-time, on the 29th October last year, in a garden at West Wickham. This specimen was unusually small, but otherwise in an excellent condition; and seemed to have but just entered into the imago state.—W. A. FORBES, 35, S. Castle Street, Edinburgh: January, 1875.

[These exceptional appearances are no doubt due to the fact that the *Cetonia* (like *Lucanus cervus*, and some other beetles) assumes the perfect state late in the autumn, but remains, ordinarily, in the cocoon till the following summer. Hence these abnormal autumnal specimens should rather be regarded as "early," not "late;" their appearance being perhaps due to sudden rise of temperature combined with individual precocity.—EDS.]

Ælia acuminata.—As this species is recorded in Douglas and Scott's "British Hemiptera-Heteroptera" only from the London district, it may be of interest if I state that I found it in abundance by sweeping in a clover-field near Winchester, at the latter end of May, some years ago."—ID.

Comparative descriptions of the larvæ, &c., of Xylophasia lithoxylea and polyodon.—From the great similarity that exists between the larvæ of these two species, Duponchel, who had bred both insects from larvæ in which he thought he could see no difference, was induced to consider them to be but varieties of one species; and I confess that for a long time after certain experiments made by myself, which seemed to end in a similar way, I felt strongly inclined to take the same view; and nothing but the firm and continued assurances to the contrary of my friend Mr. Doubleday encouraged me to persevere, in the hope of eventually distinguishing the one larva from the other.

Foiled year after year in my attempts to obtain eggs from the moths imprisoned for that purpose, and failing also to obtain them from friends who could naturally perhaps feel but little interest in these insects of such common occurrence,—I had to content myself with those single examples of the larvæ that by chance occurred to myself, or were found and forwarded to me by friends at distant intervals of time, so that my investigation has unavoidably been of a somewhat desultory nature, and in addition has often been retarded, just when success seemed almost assured, by the vexatious circumstance of the disclosure of ichneumons in the place of moths; this last circumstance also gave rise in my mind to doubts as to whether certain appearances, which I had figured and noted, might not have been due entirely to the presence of parasites within the larva, and I felt compelled to wait on for further observation of healthy larvæ.

Thanks to the kindness of the Rev. H. Williams of Croxton, my desire has been fulfilled, and my work in this difficult matter accomplished during the season now closing; and in the hope of interesting some of the readers of this Magazine, I venture to submit my notes of both species of larvæ for publication; at the same time acknowledging the kindness of Mr. W. Machin, who, at the end of March, 1871, sent me two larvæ found by him at the roots of grass, and by so doing, as the event has proved, helped me to both species at once.

Both species of larvæ are alike in figure and structure, having tough, smooth, shining skins, and still more lustrous dark heads, plates, and spots; they are irritable in disposition, and this circumstance, added to the lustre of their surface, renders very close inspection necessary to arrive at their identification. They are cylindrical and tapering a little from the third segment to the head, and again from the eleventh to the anal extremity; the third and fourth segments subdivided by transverse wrinkles, the others plump, well-defined, and puckered a little along the sides; the usual dots in both species assume the character of tubercular warts, each furnished with a hair, like the head and plates they are black or blackish-brown in colour, and in shape and arrangement are found as follows: the central transverse series on the back of the third and fourth segments are oblong and are preceded and followed by a fusiform transverse spot dorsally divided by a thin line of the ground colour, which is also seen to divide the anterior plate, while on the sides of these two segments are grouped several more or less roundish spots; on the back of each of the other segments (save the last) are four large black spots, the trapezoidals, these have the first pairs round, the second pairs roundish-ovate; along the sides of each of these segments are grouped five spots in this way, the spiracle is surrounded with four of them, viz.: a large one above and below, one behind much smaller, and the smallest a mere dot in front, the fifth spot is the lowest, and where the ventral legs occur is borne on them; the thirteenth segment has spots in front and a plate behind; the ventral and anal legs are broadly barred near their tips, which are fringed with hooks of the same colour as the head and plates.

Lithoxylea full-grown is about one and a half-inch in length, and stout in proportion, its brownish-grey ground colour has a slight fawn tinge in it, and is but little paler below the spiracular region, though the belly has a faint tinge of greenish; the pulsating dorsal vessel is of a deeper tint than the back; the upper lip darkish fawn colour, the antennal papillæ a little paler; the anterior legs fawn colour and often tipped with blackish; spiracles black.

Polyodon, when full grown, varies in length from one and a half to one and six-eighths of an inch, and is often very stout; its colour is either grey, brownish-grey, or lurid deep reddish-grey varying in intensity, and there is a variety banded across the middle of each segment with darker grey than the ground colour, these bands are not abruptly defined but melt away to the paler ground colour; another variety occurs in which the back is dark purplish-grey, changing gently along the spiracular region to a dingy brownish-red, which is on all the lower parts of the body, while the head is dingy purplish-red; but, whatever the general colouring, the pulsating darker dorsal vessel shows in a subdued manner through the skin; within the area of the trapezoidal spots on the back there are on each segment, from the fourth to the twelfth, six pale grey marks, namely: a pair of transverse short curved and

pointed streaks, with their broadish bases separated only by a mere line on the middle of the back, and rather close behind them four round dots, which range in a transverse row between the hinder pair of the tubercular spots; along the spiracular region the paler colouring of the lower part of the body is generally well contrasted with that above; the spiracles black, sometimes grey outlined with black; the upper lip greyish-brown, anterior legs the same colour though often spotted and tipped with black; the black spots on the side of the third and fourth segments occasionally vary both in number and shape.—WILLIAM BUCKLER, Emsworth: *November 28th, 1874.*

Description of the larva of Noctua rubi.—On the 11th of July last, I received from Mr. Owen Wilson, of Carmarthen, half-a-dozen larvæ of this species about half-an-inch in length. They grew rapidly on dock, and by the 23rd of the month were full-grown, when I took down a description as follows:—Length about an inch and a quarter, and rather stout in proportion. The head has the lobes rounded, but the front rather flattened; it is slightly narrower than the second, and considerably narrower than the third, segment; body cylindrical, and distinctly tapering towards the head; segmental folds distinct, but not very conspicuous; the skin soft and smooth.

The ground colour is pale olive-brown freckled with darker brown; head smooth and shining, of two shades of wainscot-brown; a smoky-brown pulsating line, intercepted through its centre by a distinct pale line, forms the medio-dorsal stripe; a pale line, edged above and below with smoky-brown, forms the sub-dorsal lines; and along the spiracles, a pale line extends, edged above with smoky-brown, and below with a broad pale yellowish-brown band; the spiracles are distinct, black. The ventral surface, legs, and prolegs, are a semi-translucent dingy yellowish-green, freckled with minute brown dots.

The larvæ of several species of the genus *Noctua* seem very closely allied, but *rubi* is without the usual dark transverse marks characteristic of a number of them.

When this description was taken, several of the larvæ had already spun slight cocoons at the bottom of their cage, and changed to smooth shining-red pupæ, and on the 9th of the following month the first imago emerged, the others soon followed.—GEO. T. PORRITT, Huddersfield; *January 8th, 1875.*

Additional captures of Deiopeia pulchella at Folkestone.—I have a very good specimen of *Deiopeia pulchella* captured in the Warren, in the latter part of September, 1874. The captor (a mere beginner) took two, and several others were seen. The second specimen is that referred to by Mr. Briggs, in Ent. Mo. Mag., No. 127.—HENRY ULLYETT, Folkestone: *January 14th, 1875.*

———— At the request of several entomologists, I record the capture of a fine male *Deiopeia pulchella*; it was taken in the Warren on the 26th October last, and came into my possession alive the day of capture; it is pronounced by Messrs. Briggs to be the darkest British specimen they have seen, the crimson spots on the fore-wings being particularly deep.—WALTER BLACKALL, 8, Guildhall Street, Folkestone: *January, 1875.*

Nonagria brevilinea, Fenn, *Phycis Davisellus*, Newman, and *Grapholita grandævana*, Zeller.—A short time since, I sent specimens of these three species to my friend Dr. Staudinger for examination, and have received his remarks upon them; he says:—

“*Nonagria brevilinea*: I never saw it before, it is a very good species, and very “distinct from all others known.”

“*Phycis Davisellus*: This species has now been described four times. It is “without any doubt *Nephopteryx genistella*, Dup. Herrich-Schäffer was the second “who described and figured this species under the name of *ulicella*, from two males “found by the late Julius Lederer, in Andalusia,—the originals are now in my collection. Then I reared a single specimen in Andalusia from a larva found upon “*Ulex*, and as at that time I did not know much about the *Micro-Lepidoptera*, I “sent it to Professor Zeller, who thought it might be a new species, so I described it “the third time as *albilineella*, and Mr. Newman the fourth time as *Davisellus*. The “English specimens are a little darker than those from the South of Europe. I have “received it from Montpellier.”

“*Grapholita grandævana*: Your No. 1 is, doubtless, this species, but not a “reared specimen. A friend of mine reared it on the sea coast near Stettin, in great “numbers. The larvæ feed on Coltsfoot (*Tussilago*), and make curious long tubes in “the sand.”—HENRY DOUBLEDAY, Epping: *January 14th*, 1875.

Obituary.

Professor J. W. Zetterstedt. This veteran Swedish Entomologist died (we believe at or near Lund) on the 23rd December last, at the great age of 90, he having been born on the 20th May, 1785. For many years he was Professor at the University of Lund, and it is probable that his collections, which he retained to the last, will be deposited in the Museum of that Institution. Although the list of his separate publications is not lengthy, it includes several very valuable and laborious works on the Entomology of Scandinavia, and especially that of Lapland, which he visited for the purpose of investigating its insect-fauna. The most important of these works are the “*Fauna Insectorum Lapponica*,” published in 1828; “*Insecta Lapponica Descripta*,” published from 1838 to 1840; and the voluminous “*Diptera Scandinaviæ*” in fourteen volumes, appearing from 1842 to 1860. To the exactitude and excellence of his works, all who have occasion to use them will bear willing testimony; and to English Entomologists they have been, and are, of great service, owing to the similarity existing between our own insect-fauna and that of Scandinavia. By his death, a vacancy has been caused in the list of Honorary Members of the Entomological Society, he having been elected as long back as 1851. A similar vacancy occurs in the Honorary List of the French Entomological Society, which he joined in 1833, being accorded the higher distinction in 1858.

Review.

THE MICROGRAPHIC DICTIONARY. Third Edition. Edited by J. W. Griffith, M.D., Professor P. M. Duncan, F.R.S.; assisted by the Rev. M. J. Berkeley, M.A., F.L.S., and T. Rupert Jones, F.R.S. 8vo. London, John Van Voorst, 1874.

This laborious undertaking (which we have previously had occasion to notice during the course of its publication in parts) is now completed, and forms a volume of 845 pages, with 48 plates (mostly coloured), and very numerous wood-cuts. About sixteen years have elapsed since the publication of the second edition, and during that time, in no other branch of Natural Science has there been so much real and rapid progress as in that to which the microscope is so indispensable a necessity for minute research.

Embryology, Histology, minute external structure, and the development of Cryptogamic plants, have, each and all, proved themselves to be so intimately mixed up with all the important scientific questions of the day, that we can only surmise what Leeuwenh ock and other old naturalists would have been able to do, and what revolutions in ideas might have been caused in the last and preceding centuries, if optical science had then been equal to their powers of observation. At the present day, microscopists appear to be divided into two classes. First, those who, being in possession of a good instrument, and a miscellaneous assortment of objects, examine these latter *seriatim*, and end with no further benefit than does the child who is pleased with the varied images exhibited in a kaleidoscope. Secondly, those who work with a definite object:—and every real Naturalist will be found in this category. To either class this work will be indispensable. Those who make the microscope a toy will find it necessary to increase their pleasures (and, perchance, may be led to higher aims thereby); those who work seriously will find in its pages that help without which many valuable hours and days would be wasted.

ENTOMOLOGICAL SOCIETY OF LONDON: 7th December, 1874.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Lieut. H. C. Harford, 99th Regiment, C. C. Dupr , Esq., of Coleridge Road, Holloway, and Owen Wilson, Esq., of Cwmffrwd, Carmarthen, were elected Members; and M. Greenwood, Esq., of Queen's Road, Dalston, a Subscriber.

Mr. E. A. Fitch exhibited several oak-galls, illustrating his notes at p. 109 of the present Vol. of this Magazine, together with others that he had not yet been able to determine.

Mr. Champion exhibited a fine collection of *Hemiptera* sent by Mr. J. J. Walker, by whom they were collected in various Mediterranean localities.

Prof. Westwood communicated a letter received from Mr. F. M. H. Stone, concerning damage occasioned to tea from Shanghai by a small beetle which proved to be *Niptus hololeucus*; also a letter from Prof. Forel, of Lausanne, stating that *Phylloxera vastatrix* had appeared at Pregny, in the Canton Geneva, on some vines that had been imported from England into the hot-houses of Baron Rothschild. With regard to a question put by Prof. Forel, as to whether out-door vines were infested in England, it appeared to the opinion of the meeting that the pest had only been observed here in hot-houses.

Mr. C. O. Waterhouse read "Synonymic Notes on Longicorn Coleoptera."

4th January, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Mr. S. Stevens exhibited a bred example of *Diloba c eruleocephala*, in which the stigmatiform markings, ordinarily so conspicuous, were entirely wanting, and a striking variety of *Hybernia defoliaria*, both from Brighton.

Mr. F. Smith exhibited a fine collection of *Hymenoptera* sent from Calcutta by Mr. Rethney. It included many remarkable species, the most interesting being a new species of *Nomia* with capitate antennæ, and *Rhynchium transversum* attacked by *Stylops*.

Mr. Grut exhibited a number of very small *Mantidæ* in spirits, sent from Sarawak (Borneo) by Mr. De Crespigny, who termed them "Mantis-Ants," and stated that they appeared in a column marching across his table, each with its tail upturned. Some (at least) of the specimens had decided rudimentary wings; but it was suggested that they formed a newly-hatched brood.

Mr. McLachlan mentioned that on the evening of the 3rd January, barely two days after the breaking up of one of the most severe and continuous frosts experienced for many years, the gas-lamps in his neighbourhood were frequented by hosts of *Cheimatobia brumata*, and asked the opinion of the Members present as to whether they had just emerged from the pupa-state, or had lived through the three weeks of hard frost; a point upon which there seemed to be some difference of opinion.

NOTES ON COLEOPTERA FROM SOUTH MOROCCO.

BY TROVEY BLACKMORE.

During a stay of some weeks in the early part of 1874, at Mogador (S.W. coast of Morocco), I obtained many *Coleoptera*; and on my return to England, my friend Mr. H. W. Bates added to my collection a number of specimens captured by Dr. Hooker during his botanical explorations in the Great Atlas in 1871. As Mogador has been but little explored entomologically, and Dr. Hooker's specimens were collected in a district never previously visited by a naturalist, the following record, supplemented by diagnoses by Messrs. Bates and Wollaston of several of the new species detected, may not be uninteresting.

My own collection was made under adverse circumstances, the winter being an unusually dry one, and as such, unfavourable for the occurrence of *Coleoptera*; and considerations of health not allowing me to make long excursions, or to work very hard. The unsettled state of the district at the time of my visit, moreover, rendered it imprudent for a stranger to go to any distance from the town, unless under the protection of a mounted escort: my collecting was therefore confined almost exclusively to the immediate neighbourhood of the town, which looks about as unpromising a spot for a coleopterist as can well be conceived. The town is built on a reef of rocks running out to sea, and, seen from the anchorage in the bay, the surrounding land for many miles presents nothing to the eye but a succession of utterly barren sand-hills. Such is, in fact, the character of the country, except that, immediately behind the town, on its eastern side, is a long strip of flat, clayey ground, somewhat below the sea level, which, during the prevalence of certain winds, is covered to the depth of a few inches with brackish water, which percolates beneath the sand-hills lying between it and the beach. This water, however, speedily disappears, and the surface of the ground is then covered with *Confervæ* and white crystals formed by evaporation. At the edge of this marsh (if it may be so called) is a scanty growth of species of *Salicornia*, and plants of kindred genera. These, with a few grasses and small plants found growing in moist spots caused by the leakage from an aqueduct by which Mogador is supplied with fresh water, comprise all the botanical wealth to be met with in a two miles' radius of the town. To this

barren region succeeds a hilly district, cultivated in the immediate neighbourhood of the "douars," or native villages, but for the most part covered with a thick jungle of *Lentiscus*, dwarf oaks, argan trees (*Argania sideroxyylon*), and the single-seeded white broom (*Retama monosperma*), replaced in the neighbourhood of the streams, which have their sources in the spurs of the Atlas, by tamarisks, oleanders, and other moisture-loving shrubs. I was only able to visit this fertile region on a few occasions, and under circumstances which did not admit of my devoting much attention to its insect-fauna, otherwise I should have doubtless been able to bring back a far more extensive collection. Notwithstanding these drawbacks, I have a goodly number of specimens, including many species generally considered rare, and a few new to science. A complete list of my captures would occupy undue space, and I must therefore confine my observations to the most interesting species.

Of *Cicindelidæ* I only took *Cicindela flexuosa*, F., which occurred in profusion near the sea shore, but I saw several of a large dark-coloured species.

Among the *Carabidæ*, my most important capture was a series of *Carabus stenocephalus*, Fairm., allied to the far commoner *C. cycrocephalus*, Fairm., which occurs on the more northerly section of the Atlantic sea-board of Morocco. My specimens were mostly taken when feeding on snails (*Helix erythrostoma*, *pisana*, &c.), with which the stems and branches of all the shrubs in the fertile region are always covered. I took several specimens, however, on the barren sand near the town. Damp spots near the aqueduct yielded two Eastern species, *Metabletus fuscomaculatus*, Mots., and *Tetragonoderus arcuatus*, Dej.; the latter, reputed to be met with in Egypt in dry sand, occurred in considerable numbers. In similar localities I took the widely distributed *Stenolophus teutonius*, *Anisodactylus binotatus*, *Calathus micropterus*, *Anchomenus pallipes*, *Anchomenus marginatus*, and a variety of *Acupalpus Lucasi*, Gaub., differing from typical examples in its larger size, and in the pale basal spot on the elytra not extending to the suture. By the borders of the salt marsh I met with *Dyschirius numidicus*, Putz., *Dichirotrichus obsoletus*, Dej., and one *Daptus vittatus*, Fisch. In the same spots, *Pogonus chalcus* was common under dry *Confervæ*, as was *Pogonus Grayi*, Wollast., a species also occurring in saline places in the island of Lanzarote. During an excursion to a village about twelve miles from Mogador, I took several of *Scarites gigas*, and a couple of *Platyderus tenuistriatus*, Wollast., hitherto represented by the unique imperfect type in the Wollastonian collection in the British Museum, captured by Dr. Crotch in Teneriffe twelve years ago. Single specimens of *Sphodrus Favieri*, Fairm., and *Læmosthenes venustus*, Clairv., occurred near the walls of the town.

Of water-beetles I obtained but few. Pale varieties of *Hydroporus Ceresyi*, Aubé, were abundant in brackish pools at the edge of the salt marsh, which localities also yielded *Philhydrus politus*, Küst. (a Spanish species), *Helochaeres lividus*, *Berosus affinis*, and the S. European *Ochthebius pilosus*, Waltl. I met with a single specimen of a still undetermined *Hydroporus* in the dry bed of a stream, the "Wad-Diarbet," a few miles south of Mogador; and *Cyclonotum orbiculare* was abundant at the roots of *Samolus Valerandi* growing in damp places near the aqueduct.

The *Brachelytra* were far more abundant, but the species taken (about twenty-five in number) were for the most part of general distribution throughout Europe and the shores of the Mediterranean. I may, however, mention *Aleochara grisea*,

Kr., *Dolicaon hæmorrhous*, Er., *Oxytelus plagiatus*, Rosenh., and a *Pæderus* identical with a species from the Cape of Good Hope, unnamed in Dr. Sharp's collection. Of this insect I captured three specimens under stones in the dry bed of the "Wad-Diarbet." *Bledius taurus* was abundant, burrowing under stones in the salt marsh; *Stenus guttula* occurred in profusion near the aqueduct, while the widely distributed *Philonthus xantholoma* and *sericeus* were common under sea-weed.

Of *Clavicornes*, the minute *Ptenidium punctatum* occurred commonly under sea-weed and marine rejectamenta; *Hister major* and *12-striatus* were not unfrequent near the public slaughtering-place, where also I occasionally met with the conspicuous *Saprinus semipunctatus*. *S. chalcites* and *conjungens* occurred under dry camel's dung on the sand-hills.

The *Lamellicornia*, as might be expected in a district destitute of pasture and vegetation in general, were but scantily represented. I met, however, with *Ateuchus sacer* in some numbers at a locality a few miles inland, where a few cattle are kept, and where I also obtained *Onthophagus circumscriptus*, Fald., and varieties of *O. taurus*. I took single examples of *Aphodius affinis*, Luc., and *A. hydrochæris*, as well as one of a small species which I noticed in the collection of Signor Olcese at Tangier, labelled *Aphodius politus*. The Mediterranean *Psammodius sabulosus* was common on the sand-hills; and, on hot days during the latter part of my visit, *Pachydes anthracinum* was not unfrequent, flying in the sunshine. I was also fortunate in capturing a specimen of *Oxythyrea femorata*.

Of the *Malacodermata*, I met with but a single representative in the new species of *Melyrosoma*, which is characterized by Mr. Wollaston under the name of *M. Blackmorei*.

The *Tenebrionidæ* were far more extensively represented, and my most numerous, and in some respects most interesting, captures appertained to this family. As is the case with all Moorish towns, such rubbish and animal or vegetable refuse as is not allowed to rot in the street, is carried out on donkeys' backs, and deposited immediately outside the city walls, the result being the formation of a series of extensive mounds far from pleasing to the sight, and exhaling odours anything but pleasing to the smell. But, however disagreeable they may be in these respects to the ordinary traveller, these accumulations form excellent hunting-grounds for the coleopterist. It was in these rubbish heaps, or their vicinity, that I made the acquaintance of what has hitherto, I believe, been considered as an essentially Canarian species—*Eulipus Brullæi*, Wollast.,—which occurred very freely under pieces of old matting and decaying, disused, rush baskets and panniers, round which sand had drifted. In similar habitats I met with five species of *Blaps*, including *B. gages*, *sulcata*, *prodigiosa*, and a species allied to, or a variety of, *B. Haroldi*, Kraatz. In the neighbourhood of these mounds I also captured *Morica Favieri*, Luc., *Akis elegans*, Charp., and *Scaurus tristis*. *Pachychila* was represented by a few specimens of *P. sabulosa*, Luc., *Salzmanni*, Sol., and *Kunzei*, Sol. (?), and by *P. impunctata*, Fairm., in considerable numbers. It is possible that I may have more than one species under the latter name, as I collected some specimens differing greatly in size from normal types, though apparently con-specific in other respects. Of the true *Phaleria bimaculata*, Herbst (not the spotted variety of *P. cadaverina*, sometimes so named), I captured two specimens under sea-weed, where also I met with an example of the cosmopolitan *Alphitobius diaperinus*. In the town itself, I

met with *Paivaa hispida*, Brullé, hitherto reputed to occur only in Lanzarote and Fuerteventura, the two eastern islands of the Canarian Archipelago. On submitting my specimens to Mr. Wollaston for comparison with Canarian individuals, he returned them as "*P. hispida*, var. *b*, *attrita*," with the following diagnosis:—" *Prothoracis* "*angulis posticis paulo magis exstantibus, elytrorumque punctis vix obsoletioribus.*" They can hardly, however, be regarded as more than (if so much as) a geographical variety of the Canarian form, the degree of punctuation being variable in the latter. *Pimelia* was represented by *P. cordata*, *læviuscula*, *Fairmairei*, and *rotundipennis*, Kraatz; the last named being the most abundant. It varies excessively in size, specimens captured near the town being only half the size of those taken at a little distance inland. The fine *Pimelia Fairmairei* was locally abundant at a spot called "The Sultan's garden," about three miles S. E. of Mogador, where I also met with a few specimens of *Blaps ecaudata*, Küst. *Halonomus salinicola*, Wollast., abundant in Lanzarote, occurred in some numbers under stones at the edge of the salt marsh; where also, under *rejectamenta*, I met with *Anthicus hispidus*, Rossi, and two undetermined species of that genus.

The season of the year was unfavourable for the occurrence of *Curculionidæ*, and I have few captures to record in that family. I may, however, mention *Cneorhinus barcelonicus*, Herbst, not unfrequent on *Retama monosperma*, and a *Mecinus* and *Cleonus* probably new. The latter is allied to *C. marcidus*, from which it is distinguished by its larger size and differently shaped rostrum.

Of the *Phytophaga*, I met with *Timarcha rugosa* and *Chrysomela diluta*, both found sparingly near the town.

My list is brought to a close by the mention of the frequent occurrence of the universal *Coccinella 7-punctata* and a *Scymnus*. In concluding it, I may remark that I shall be happy to furnish any intending explorer of the Mogador district with every information in my power.

THE *COLEOPTERA* obtained by Dr. Hooker's party were few in number, the energies of the party having been directed towards the formation of the rich herbarium which they brought to this country; but the collection included several species new to science.

Those obtained in the plain of Morocco consisted only of such species as are widely distributed over the country, and comprised *Amphicoma Goudoti*, Cast., *Morica Farieri*, Luc., *Agapanthia irrorata*, F., *Labidostomis rubripennis*, Luc. (in considerable numbers), and *Chrysomela Banksi*.

In the lower and middle regions of the eastern range of the Atlas chain (3,000 to 6,000 feet), described as possessing a singularly rich and varied flora, several insects of greater interest occurred. These include two species of *Pimelia*; one, described hereunder as *P. malleata*, Wollast., allied to *P. monticola*, Rosenh., which occurs in the sub-alpine regions of the Sierra Nevada; the other, of which only one specimen was obtained, somewhat resembling the Canarian *P. serrimargo*, Wollast., from which, however, it seems distinct in several respects, and I have little doubt that it will prove to be a new species. A single specimen of the *Gymnetron*, described by Mr. Wollaston as *lanuginosum*, was also obtained. In addition to these, Mr. Bates has specimens of *Calathus circumseptus*, Germ., a common species in Mediter-

anean districts; and one of *Calathus opacus*, Luc., an African form of *C. melanocephalus*. The *Lamellicornia* were represented by *Aphodius sordidus* and *Oxythyrea squalida*, and by a single specimen of an *Ateuchus*, probably referable to *A. laticollis*, F., but distinguished by the nearly obliterated elytral sulci, which, however, are plainly distinguishable from the glossy interstices by their opaque surfaces. An undetermined *Lampyris* was common, and I have a few specimens of *Morica Favieri*, Luc., *Mylabris oleæ*, Cast., and *Chrysomela Banksi*, from these mountainous regions. The rich forests with which the slopes of the Atlas were formerly covered, to a considerable elevation, have now almost disappeared, and the only wood-haunting species obtained was an example of the widely distributed *Apate capucina*.

The heights of the Djebel-Tezah yielded six species (of which, half appear to be new), obtained, as I am informed by Dr. Hooker, "under stones" at elevations of from 9,000 to 11,000 feet; one, at least (which I imagine to be the new *Hopatrum*), occurring at the very summit of the mountain (11,500 feet). The species collected comprised *Cymindis Hookeri*, Bates, n. s., *C. leucophthalma*, Luc., *Hopatrum Hookeri*, Woll., n. s., specimens of *Pachydema* and *Otiorhynchus* not in sufficiently perfect condition to be determined, and an *Agabus*, considered by Dr. Sharp, who has carefully examined it, to be absolutely con-specific with *A. consanguineus*, Wollast., but which seems to be far more shining (or less alutaceous) than typical examples found in the islands of Teneriffe, Gomera, and Palma, of the Canarian group.

Before ending this catalogue, I must mention that Mr. Ball, one of Dr. Hooker's party, obtained, at Mogador, specimens of *Sphæricus simplex*, Wollast., at roots of *Spargularia fimbriata*, and a *Podagrica*, apparently not referable to any described species. I am much indebted to Messrs. Bates and Wollaston and Dr. Sharp for their careful examination and determination of many of my doubtful species.—TROVEY BLACKMORE, The Hollies, Wandsworth, S.W.: December, 1874.

[In the above notes, Dr. Hooker's captures are stated to have been made in the eastern range of the Atlas mountains, whereas they were made in the eastern portion of the western section of the Atlas range explored by Dr. Hooker.—T. B.]

DESCRIPTIONS OF NEW SPECIES REFERRED TO IN MR. BLACKMORE'S NOTES ON COLEOPTERA FROM SOUTH MOROCCO.

BY H. W. BATES, F.L.S., AND T. V. WOLLASTON, M.A., F.L.S.,

CYMINDIS HOOKERI, *sp. n.*

C. melanocephalæ (Dej.) *affinis*; *sed minor, gracilior, tota rufo-picea, breviter dense pubescens*; *capite subcrebre punctato*; *thorace angusto, cordato, angulis posticis obtusis, fere rotundatis, suprâ toto punctato*; *elytris basin versus angustatis, obtuse truncatis, punctulato-striatis, interstitiis omnibus punctulatis*: *palpis, antennis, pedibusque rufis.*

Long. corp. 8 mill.

Distinguished from *C. melanocephala*, Dej., and the allied species, by its slender form and uniform pitchy-reddish colour, without trace of humeral spot on the elytra. The labial palpi are rather strongly securiform. The thorax is relatively small, cordate, with the sides very slightly sinuated towards the base, and the posterior angles scarcely perceptibly advanced and obtuse. The elytral interstices are uniformly

punctulated; the punctures much stronger than in *C. melanocephala*, so that the three larger punctures of the third interstice are with difficulty distinguished.

Atlas: Jebel-Tezi; alt. 10,000 feet.

H. W. B.

Genus MELYROSOMA.

Wollaston, *Ins. Mad.*, 253 (1854).

MELYROSOMA BLACKMOREI, *sp. n.*

M. lineari-elongatum, atrum, pilis brevibus demissis griseis vestitum; capite prothoraceque denseruguloso-subpunctatis, illo magno, subtriangulari-quadrato, convexo, hóc ad latera conspicue subrecurve marginato, antice in medio distincte canaliculato; coleopteris valde profunde ac densissime subseriatim punctatis (punctis maximis), suturâ costisque tribus utrinque fortiter elevatis; antennis basin versus tarsisque (elongatis) paulo dilutioribus.

Long. corp. lin. 2½.

Habitat, Morocco, in loco salino juxta oppidum Mogador a Dom. T. Blackmore captum, cujus in honorem nomen triviale proposui.

The large size of this *Melyrosoma*, as compared with the representatives of the group hitherto made known (all of which are peculiar, apparently, to the Atlantic islands), in conjunction with its rather parallel-elongate outline, its considerably developed head, the somewhat recurved edges of its prothorax, and the very deep and coarse punctures of its elytra (on each of which latter there are the three usual elevated costæ), will sufficiently distinguish it. A single example was found by Mr. Trovey Blackmore "under a stone in the salt-marsh behind the town of Mogador, in company with *Halonomus salinicola*;" but that particular habitat was clearly only an accidental one, the members of the genus being eminently flower-infesting in their modes of life.

T. V. W.

Genus GYMNETRON.

Schönherr, *Curc. Disp. Meth.*, 319 (1826).

GYMNETRON LANUGINOSUM, *sp. n.*

G. parallelo-oblongum, depressum, immaculatum, atrum, subopacum, longe cinereo-nigroque pilosum, antennis (capitulo obscuro excepto) tibiis tarsisque rufo-ferrugineis; capite prothoraceque transverso densissime rugoso-punctatis, rostro ad apicem leviter attenuato, oculis prominentibus; elytris (pygidium haud tegentibus) depressis, ad latera parallelis, argute angustequae subcrenato-striatis, interstitiis punctulato-rugulosis; scapo longiusculo; tibiis robustis.

Mas: femoribus subtilis dente acuto armatis.

Fæm.: adhuc latet.

Long. corp. lin. vix 2.

Habitat, Morocco, in montibus "Atlas" captum.

Judging from M. Brisout de Barneville's Monograph (Ann. Soc.

Ent. Fr., 1862), the present *Gymnetron* must be closely allied to *G. pilosum*, Besser, a species which occurs in southern Europe and the north of Africa; nevertheless, it would appear to be not quite so large, and to have the antennæ (except the club), the tibiæ, and the tarsi, of a bright rufo-ferruginous; and its elytra are, I suspect, more straightened at the sides. It is depressed and black, and its entire surface is densely clothed with elongated cinereous hairs, which are intermingled with a few darker ones; and its scape is somewhat lengthened, and its tibiæ are unusually robust, for a member of this genus. T. V. W.

Genus PIMELIA.

Fabricius, *Syst. Ent.*, 251 (1775).

PIMELIA MALLEATA, *sp. n.*

P. parva, subnitida; capite prothoraceque distincte et argute asperato-punctulatis (punctis in medio gradatim minutioribus, sed antice et versus latera majoribus, necnon in hoc in tuberculos magnos transientibus), hoc brevi, ad latera valde rotundato, basi sinuato, et utrinque in disco plus minus irregulariter inæquali: scutello parvo, scutiformi; elytris valde malleato-inæqualibus, aut transversim grosse rugatis, fere punctorum, granulorum costarumque carentibus; pedibus nigro-piceis.

Long. corp. lin. 6-6½.

Habitat in montibus "Atlas," a peritiss. J. D. Hooker, M.D., parce depressa.

A very distinct little species, which may easily be known by its comparatively small size (for a *Pimelia*), by the conspicuous subasperated punctules of its head and prothorax (the latter of which is considerably rounded at the sides), by its rather small and scutiform scutellum, and (more particularly) by the structure of its elytra—on which the punctures, tubercles, and costæ are almost obsolete, but which have their entire surface coarsely wrinkled, or transversely *malleated*—the inequalities, however, becoming less decided as they approach the scutellum. The discovery of this species is due to the researches of Dr. J. D. Hooker, who met with it, as I am told by Mr. Blackmore, in the "middle regions" of the Atlas range.

T. V. W.

Genus HOPATRUM.

Fabricius, *Syst. Ent.*, 76 [*script. Opatrum*] (1775).

HOPATRUM HOOKERI (Blackmore, *in litt.*), *sp. n.*

H. oblongum, nigrum, rugulosum, opacum, subcalvum (sc. subtilissime, brevissime, et parcissime griseo-pubescentibus); genis ante oculos valde exstantibus, rotundato-angulatis; capite prothoraceque dense, profunde, et confuse asperato- (aut granulato-) punctatis, hoc lato, ad latera æqualiter rotundato, angulis posticis acutis, postice in

medio obsolete carinulato; elytris antice prothorace angustioribus, humeris acute angulatum exstantibus, obsolete punctato-striatis, minute sed vix dense granulatis, interstitiis alternis obsolete obtuse elevatis; aniennis tarsisque rufo-piceis.

Long. corp. lin. vix 4.

Habitat editiores montium "Atlas," in ascensu Djebel-Tezah (inter 9,000 et 11,000 s. m.) a clariss. Doct. J. D. Hooker repertum; necnon in honorem captoris amici mente a Dom. Blackmore dicatum.

Well distinguished amongst the *Hopatra* by its rather largely developed and equally-rounded prothorax (which, together with the head, is closely and coarsely subpunctate-granulate), by its nearly bald surface, and by its elytra (which are a little narrower anteriorly than the prothorax, and have their humeral angles acute and prominent) being less densely sprinkled with much smaller granules, and with their alternate interstices obtusely and obsoletely raised. I have had much pleasure in retaining for it the name proposed by Mr. Blackmore, who is desirous to place on record the obligations of entomologists to Dr. Hooker for the interesting *Coleoptera* brought by him from the hitherto unexplored regions of the Atlas.

T. V. W.

ON THE ARRANGEMENT OF THE BRITISH *ANTHOMYIIDÆ*.

BY R. H. MEADE.

(concluded from page 203.)

MYDÆA.—I have placed in this genus a number of species mostly of considerable size and oval form, which differ from those in the genus *Hyetodesia* by having naked eyes, and from those in *Spilogaster* by having unspotted bodies. Macquart placed them in the second division of his genus *Aricia*; and Schiner and Rondani have included them in *Spilogaster*; they appear, however, to form a more natural group than many others that have been raised to the rank of genera. I have adopted the name of *Mydæa*, as it had been applied by Desvoidy to *M. pagana* and to one or two others of the leading species in the genus.

In this and the two preceding genera two thoracic bristles are placed in front of the transverse suture, in a line with four behind it, in all the British species I have examined, with the exception of *Hyetodesia læta*, which has only three behind the suture.

SPILOGASTER.—This genus, as its name implies, is characterised by the species having the body spotted; four, or sometimes six, distinct and often triangular spots being arranged in pairs (one on each side of the median line) on the dorsum of the second, third, and some-

times of the first, segments of the abdomen. The arista is always furnished with distinct, though sometimes short, hairs, and the eyes are naked.

The number of thoracic bristles in the line beyond the suture (two always being in front) varies from three to four; they are always constant in number, however in the same species, and are therefore of great specific value, sometimes enabling two otherwise closely allied species to be at once pronounced distinct.

The flies in this genus are generally smaller, more oblong in shape, and altogether less highly developed than those in the preceding genera. The species are rather numerous and difficult to name.

HYDROPHORIA.—This genus, of which *H. conica* is the type, is characterised by the species having plumose antennæ, naked eyes, unspotted oblong or oblong-conic bodies, and subanal genital appendages in the males. There are four thoracic bristles behind the suture, the last or hindmost of which is always smaller and weaker than the others. This is only a small genus.

DRYMEIA.—This genus is very well marked, but only contains a single species, which may at once be recognised by the elongated, bent, and pointed proboscis. This fly, named *D. hamata*, is black and very hairy, has the thoracic bristles arranged two in front and three behind the suture, and has the arista furnished with very short hairs, by which character it forms a connecting link to the species in the next sub-division. *D. hamata* may be found in some places in abundance in the autumn, upon the flowers of the common hawkweed (*Hieracium pilosella*) and other *Compositæ*.

ONODONTA and HYDROTEA.—These two genera may be mentioned together, as they only differ by having the eyes hairy in the former and naked or very slightly tomentose in the latter. The species of both may at once be known from all the other *Anthomyiide* by the anterior femora of the males being furnished with one or two teeth near the end. The corresponding tibiæ are also mostly notched.

The dorsal thoracic bristles are six in number, two in front and four behind the suture. These two genera form a very natural group. *H. meteorica* and other allied species swarm in woody places, and torment horses, especially in damp warm weather.

LASIOPS.—This is a very artificial genus, formed by Meigen to include a few aberrant species which have a naked arista and hairy eyes. One (*L. cunctans*) closely resembles an *Onodonta*, only the anterior femora are without teeth; another is very like a *Hyetodesia*,

with the exception of having a naked arista; and a third, which is very common, is so similar to an *Anthomyia*, except in its hairy eyes, that it has been named by Rondani *L. anthomyinus*.

OPHYRA.—The typical species in this small genus (*O. leucostoma*) is characterised by the curved hind legs, dark metallic blue-black oval body, naked arista and eyes.

LIMNOPHORA.—This genus is so closely related to *Spilogaster*, that it is rather difficult to define the limits between them. Thus Schiner includes in *Limnophora* all those species with spotted oval or oblong bodies, and naked eyes, which have a short haired arista. Rondani, on the contrary, restricts it to those only which have quite, or nearly quite a naked arista, and, at the same time, have the tibiæ of the middle pair of legs furnished with one or more setæ or short bristles on the middle of their external as well as posterior surfaces, in addition to the usual apical ones. He thus contracts the genus within very narrow limits, and I think it better to do so, as we can then define it accurately; for it is found that in all the spotted species with a plumose arista, whether long or short haired, forming the genus *Spilogaster* proper, the middle tibiæ have no bristles on their external surfaces. In this and the two preceding genera there are six thoracic bristles.

HOMALOMYIA.—This is one of the best defined and most natural genera in the family. The species may be recognised at once by having a smooth semi-circular head, without any projecting angles, and by the eyes being very large and extending much lower over the face than in the species of other genera, so as to cover the cheeks. The alulets are small, but the lower scale is not quite covered by the upper one. The abdomen is rather elliptical and flattened, and is very commonly figured on the dorsum in the males, with a central line of triangular marks. The shortness of the anal vein of the wings, with the curving of the axillary vein towards its extremity, is very characteristic of this and the following genus.

The males of these common little flies, the best known of which are *H. canicularis* and *H. scalaris*, are often seen sporting in troops in the air in summer, performing aerial dances after the manner of the *Tipulidæ*.

AZELIA.—This small genus, named *Atomogaster* by Macquart, may be known at once from *Homalomyia* by the species being of a velvety-black colour in the males, and having a narrow cylindrical abdomen marked by three rows of dots, which are so arranged as to form a series of triangles.

The males of these pretty little flies are usually found in greater abundance than the females, but I have frequently caught the latter upon the droppings of horses and cows in the roads and fields. They doubtless deposit their eggs in the dung.

ANTHOMYIA.—The restricted genus *Anthomyia* contains the last batch of species in the division, having the scales of the alulets of unequal size. The flies comprised in it have a bare, or nearly bare, arista, and differ from those in the two preceding genera by having the head more or less angular; the face and epistome often projecting considerably. They also have the anal vein prolonged to the margin of the wing. The shape, as well as the colour and markings of the abdomen, vary greatly, and the genus is not upon the whole a natural one, but requires subdivision. The typical species of this genus are *A. pluvialis* and *A. radicum*.

In the last three genera, the species, with a few exceptions, have five dorsal bristles upon the thorax, two in front and three behind the suture.

HYLEMYIA.—This genus so closely resembles *Hydrophoria*, chiefly differing by the smaller and equal size of the scales of the alulets, that the two have been included in one by Schiner and others.

The abdomen is oblong or rather cylindrical, and generally furnished with subanal appendages. The dorsal bristles are five in number, but, as in *Hydrophoria*, a sixth smaller one is often placed behind the others. This genus includes a large number of species.

CHORTOPHILA.—This is also a large genus. Many of the species resemble, in general appearance, those of *Hylemyia*, having cylindrical bodies and subanal appendages, but differ by the arista being bare; others are closely allied to the *Anthomyiæ*, but have the scales of the alulets of equal, instead of unequal, size. Many of the species in both these last genera are small and difficult to name, the descriptions of authors not being sufficiently precise, or not based upon characteristic points of structure.

ERYPHIA.—I have included this genus in the British list, but I have not yet seen a specimen of the single Alpine species which it contains.

LISPA.—In this and the succeeding genera the eyes are widely separated in both sexes. The species contained in the present one may at once be recognised by the form of the palpi, the extremities of which are dilated into flattened knobs. They are not common.

CARICEA.—This and the four succeeding genera have all been included by Meigen, Macquart, Schiner, and others, in the genus *Cænusia*; but they differ from each other, as I have pointed out in the analytical table, by the relative size of the alulets, as well as by the state of the arista. These genera, upon which I shall not further dilate, include a considerable number of small flies, many of them found by sweeping among grass and herbage. They are of various shapes and colours, and only agree in having the eyes distant in both sexes. Their bodies are mostly spotted. The number of dorsal bristles varies considerably in the different species; thus there is only one in front of the suture, and three behind it, in *Caricea tigrina* and *Cænusia sexnotata*; while in *Caricea ciliacosta* and *Cænusia nigripes* there are two in front and four behind: again, other species, as *Cænusia meditata*, have two in front and three behind; while, therefore, these dorsal bristles are very valuable specific characters, they are here of no use in a generic sense.

In concluding these few remarks upon the *Anthomyiidae*, I beg to say that I shall be much obliged to any entomologist who will forward any specimens of this family for my inspection, and I will undertake to return them named as accurately as is in my power.

Bradford, Yorkshire: December 1st, 1874.

ON *ASPHONDYLIA ULICIS*, TRAILL.

BY G. H. VERRALL.

In the number of the Scottish Naturalist for October, 1873, Mr. J. W. H. Traill describes a gall found on *Ulex europæus* on Scotston Moor, near Aberdeen, and slightly describes the perfect insect, which he names *Asphondylia ulicis*. Thinking a more detailed description advisable, in order to confirm Mr. Traill's name, I wrote to Mr. W. A. Vice asking for specimens, and he sent me two long ago; but, owing to their having fared badly in travelling, I did not attempt to describe them. Last August, I was collecting in company with Mr. J. Scott between Poole and Bournemouth, and when glancing over a few *Diptera* he had in his collecting bottle, I remarked that one resembled the *Asphondylia* sent by Mr. Vice, and, looking at the first piece of furze by my side, I noticed the galls in abundance. Upon my return home, I found that when I visited Bournemouth in July, 1871, I had caught half-a-dozen of the insect, having, no doubt, been attracted by its large size for a *Cecidomyia*. With the help of these, I therefore give a short description.

ASPHONDYLIA ULICIS, Traill, Scot. Nat., ii, 172 (1873).

♂ ♀; brownish-black, paler on the breast-sides and about the humeri; frons, face, and palpi yellowish; abdomen shining dark brown, sides generally paler, male genitalia yellowish, of moderate size, ovipositor rather short, needle-shaped, deep yellow; antennæ in both sexes 13 (2 and 11) jointed, not quite so long as the body, blackish, each joint after the two basal ones slightly decreasing in length up to the *two last joints*, which are equal, stouter, and distinctly *shorter than the rest*, thus forming a slight knob; the antennæ of the female seem slightly the longest. The halteres and legs in dried specimens are generally yellowish, the tarsi being darker, but they vary in all stages up to blackish-brown, the coxæ being somewhat greyish. Wings iridescent, slightly greyish, the third longitudinal vein ending in the tip of the wing, being slightly curved near its tip, the small transverse veinlet which should connect this vein with the one above it near its base seems altogether absent, at least, I am unable to detect it in the eight specimens I have before me; the insect in best condition has the costa densely fringed with blackish-yellow hairs, and the disc of the wing moderately clothed with dark coloured hairs, but all these seem to rub off very easily.

Length, $2\frac{1}{4}$ lines; expanse of wings, about 5 lines.

All the above notes are made from dried specimens.

Bred from galls which closely resemble flower-buds, but which are larger and more inflated; "monothalamous, enclosing a large cavity" in which there is not a trace of the inner whorls of the flower. Walls "lined with a short white pubescence, on which the larva feeds" (Traill, *l. c.*). I expect this species is very common, but overlooked, as the first time I searched for it after making its acquaintance at Aberdeen, I found it in abundance, though nearly 500 miles away. In some of the galls at Bournemouth was a large whitish larva, many times the size of the *Asphondylia* larva, from which came I suppose some Hymenopterous parasites which I found when looking at some old galls in a box. Query—can they get sufficient nourishment from one larva or gall?

I believe this is the first gall reported to be found on the furze (*Ulex europæus*); but though, the genus *Asphondylia* is still a very small one, species of similar habits are described from *Sarothamnus scoparius*, *Cytisus austriacus*, *Genista germanica*, and *Ononis spinosa*; *A. sarothamni*, Lw., is smaller than *A. ulicis*, and has different antennæ, the male having them 2 and 13 jointed, with the terminal joint only very small and round, while the female has them 2 and 12 jointed, much shorter than in the male, and still smaller at the tip; the ovipositor seems also much longer. *A. cytisi*, Erfld., is about the right size, but has the antennæ 2 and 10 jointed, with the terminal joint short. *A. genistæ*, Lw., is also about the right size or even larger, but

is insufficiently described, being only distinguished in its descriptions from *A. sarothamni* by its greater size, and by the different habitat of the larva; *A. ononidis*, Fr. Lw., has the antennæ 2 and 12 jointed, and all the 12 joints of equal length. A comparison with the species not infesting the *Papilionaceæ*, or those described by Walker without any notice of their habits, is unnecessary, as *A. ulicis* is not likely to be confounded with the former, and cannot be identified with the latter without comparison of types.

The Mulberries, Denmark Hill, London, S.E. :

February 8th, 1875.

DESCRIPTIONS OF *RHOPALOCERA* FROM MADAGASCAR.

BY W. C. HEWITSON, F.L.S.

Mr. Henley Smith has received a collection of butterflies from Madagascar, taken by Mr. Crossley. The collection, although abounding in fine species, does not, unfortunately, contain much that is new. Of these, I give descriptions of the most remarkable. There are specimens of the rare *Hæteropsis Drepana* figured in the "Genera," and with them one example which, though very different in colour, is no doubt the female. This I have also described below.

PAPILIO MANGOURA, *sp. n.*

Upper-side : black. Both wings crossed at the middle by a common grey-blue band, broadest at the middle, commencing at the costal margin of the anterior wing, where it is furcate, and ending near the anal angle of the posterior wing, where it is also furcate, its outer border dentated on the anterior wing, sinuated between each pair of nervures on the posterior wing; both wings spotted with white on the outer margins. Anterior wing with a sub-marginal series of white spots. Posterior wing tailed, the end of the tail marked by a minute white spot, a small spot irrorated with white above the anal angle.

Under-side : rufous-brown. The band of the upper-side represented on the anterior wing by lilac-white scales and a grey spot on the inner margin; on the posterior wing by a narrow, straight band, irrorated with lilac-white.

Exp., 3 $\frac{1}{16}$ inch.

At first sight this species appears as though it belonged to the *Nireus* group. It is, however, more closely allied to *P. Lalandii*.

MELANITIS MASOURA, *sp. n.*

Upper-side : ♀, white, slightly tinted with lilac and yellow. Both wings dentated on the outer margin. Anterior wing with the costal margin dark brown, broken into spots towards the apex ; marked in the cell and below it by a yellow spot. Posterior wing deeply dentated ; some spots of the under-side seen through.

Under-side : white. Anterior wing with the yellow spot as above, the costal margin spotted with black chiefly near the base, marked by a small ocellus between the first and second branches of the median nervure. Posterior wing undulated with black on the costal and inner margins, crossed near the outer margin by six black ocelli, irrorated with white or yellow, the pupil white, the outer margin and a sub-marginal line black ; three or four indistinct spots of brown between the ocelli and the outer margin.

Exp., $3\frac{1}{10}$ inch.

HETEROPSIS DREPANA, ♀.

Upper-side : white tinted with yellow. Anterior wing with a brown spot at the end of the cell, the apex broadly dark brown, pointed as in the male, and marked by two minute white spots, a band of brown near the outer margin ; a black ocellus with white pupil between the first and second branches of the median nervure.

Under-side : rufous-white, undulated throughout with dark brown. Anterior wing with the apex brown, marked by three white spots, an indistinct band from the apex to the inner margin before its middle. Posterior wing with a similar transverse band, clouded with rufous-brown, which is marked by some minute white spots near the anal angle.

Exp., $2\frac{1}{10}$ inch.

The male, though brown below, is marked as in the female. It is irrorated with white at the apex of the anterior wing, and on the outer border of the transverse band of the posterior wing, which is crossed towards the outer margin by a series of minute white spots.

Oatlands, Weybridge :

February, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

DESCRIPTION OF A SPECIES NEW TO BRITAIN.

Genus *IDIOCERUS*, Lewis.Species *IDIOCERUS HEYDENII*, Kirschb.*Idiocerus Heydenii*, Kirschb., Cicad., 155, 6 (1868).

♀. Pale brownish-testaceous or somewhat rust coloured. *Crown* with two small black spots on the anterior margin, each nearer to the eyes than the centre. *Pronotum* with a pale, almost white, narrow, central, longitudinal streak, and an oval spot of the same colour on each side. *Scutellum* with a pitchy-brown triangular spot near each basal angle. *Elytra*: nerves at irregular intervals alternately brownish-testaceous or rust coloured and white. *Clavus* with a large whitish patch around the apex of the central nerve. *Corium*: nerves of the apical areas pitchy-brown, finely but distinctly punctured.

Head—*crown* very pale testaceous with a narrow, almost white central line, continued on to the frons; on the anterior margin adjoining each eye a more or less distinct, round, almost white space, margined by pale fuscous, and with a small black spot in the centre. *Face*: termination of the pale central line enclosed by a more or less distinct brownish patch; disc with a brown η -shaped character. *Antennæ* pale testaceous; *setæ* similarly coloured.

Thorax—*pronotum* pale brownish-testaceous or somewhat rust coloured, with a narrow, longitudinal, almost white central line, and a largish oval spot on each side, as also a few minute ones of the same colour; at the apex of the anterior margin of the oval spots, a more or less distinct minute black spot. *Scutellum* somewhat whitish, with a dark \wedge -shaped transverse channel, below which, on each side of the centre, is a pale brownish-testaceous longitudinal streak; basal angles with a pitchy-brown triangular spot; disc, above the transverse channel, with a more or less distinct, small, pale brownish-testaceous spot. *Elytra* pale brownish-testaceous or somewhat rust coloured; *clavus*: inner marginal nerve between the scutellar angle and the apex narrowly pitchy-brown, central third white; round the apex of the central nerve a somewhat large whitish patch; disc at the base next the claval suture whitish; *corium*: nerves alternately but irregularly pale brownish-testaceous or rust coloured and white; disc irregularly marked (more or less distinctly in different individuals) with whitish patches; anteriormarginal nerve round the apex, and the longitudinal nerves of the apical areas, pitchy-brown, the latter finely but distinctly punctured; nerves of the ante-apical areas posteriorly, finely but distinctly punctured; appendix ample, pale fuscous. *Legs* somewhat rust coloured; *thighs*: 3rd pair with a narrow, black, longitudinal line along the upper and lower margins of the inside; *tibiæ*: 2nd and 3rd pairs down the inner margin with a black line, exteriorly at the base brownish; *tarsi*: 1st joint brown; apex of the 3rd and *claws* black.

Abdomen beneath deep testaceous with more or less of a rusty tinge.

Length, ♀, $2\frac{1}{2}$ lines.

This species belongs to the section in which the males have the plate near the apex of the antennæ. It stands near *I. lituratus*, but has not the apparently interrupted and irregular transverse band below the apex of the clavus, as in that species, and the colour is totally different. When the insect is in repose, the white patch at the apex of the central nerve of the clavus, common to each elytron, is very distinct.

I have only seen two females taken by Mr. Douglas at Darenth Wood, in October, 1866.

This is one of the three species referred to by me at page 81, vol. x, of this Magazine, which I was at that time unable to determine.

37, Manor Park, Lee, S.E. :

February, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

(continued from page 149.)

CICADULA, Zett.

This is a group of insects which I think the author originally brought together on account of the great external resemblance of many of the species. They are twenty-three in number, and divided by him into eight sections, which he defines, principally, by the number and form of the apical areas of the elytra, and the neururation of the wings. These are excellent characters, so far as they go. But, as the genitalia of the whole of the *Homoptera* have since been ascertained to differ much in structure, and play an important part in determining genera and separating species, it cannot be wondered at that *Cicadula* should cease to be retained as a genus.

Flor, in the Rhyn. Livl., vol. ii (1861), divides the species between two genera, viz., *Jassus* and *Typhlocyba*; but there certainly is not, so far as is known, a European representative of the genus *Jassus*, Fab. This arrangement cannot hold good any more than that of my friend the Rev. T. A. Marshall, who subsequently described the British species in the Ent. Mo. Mag.

Fieber, in the Verh. z.-b. 1866, p. 505, Wien, takes as his types of *Cicadula* two species, *C. quadripunctata*, Fall., and *C. (Jass.) fenest-*

trata, H.-Sch. These he afterwards abandons, and consigns to the genus *Thamnotettix*, Zett., and in his "Kat. der europäischen Cicadinen" (1872) adopts *C. cyanæ*, Boh., as his type. In the Catalogue he has referred the several species of Zetterstedt's genus to various genera which I partly adopt in the present instance. As I view matters, we at present possess four species, of which one is new, and whether it is the insect standing in Fieber's Catalogue under the name *C. frontalis*, I have no means of ascertaining, as the specimen I sent him for determination some years ago never was returned, nor is there even a sketch of it amongst those in the possession of M. L. Lethierry. I may add that it is very possible for Boheman's beautiful species, *C. cyanæ*, to be added to the list by some one who has the good fortune to live near where water-lilies grow, to which plants, he says, that species is attached.

In the table, which follows hereafter, I give sufficient characters to determine any of the species. *C. sexnotata* is, perhaps, the commonest of British *Homoptera*. *C. variata* comes next, but *7-notata* has only, to my knowledge, been taken by the late Mr. T. J. Bold and the Rev. T. A. Marshall.

CICADULA, (Zett.) Scott, Fieb., p., *nec* J. Sahlberg.

Head—*crown*: anterior margin gently rounded, scarcely acuminate in the centre, length about equal to half the width between the eyes on the concave basal margin. *Eyes*, viewed from above, spherical triangular; outer margin projecting beyond the sides of the pronotum. *Ocelli* on the anterior margin, near each eye, and visible from above. *Face* convex, about as long as between the eyes measured on the frons. *Clypeus*: apex reaching to or very little beyond the lower margin. *Loræ* sub-oval. *Antennæ* placed in a small cavity at the lower corner of each eye.

Thorax—*pronotum* twice as broad as long; posterior margin straight or very faintly concave, rounded towards the shoulders; lateral margins convex. *Scutellum* triangular, apex acute. *Elytra* with four apical areas; the first transverse nerve dividing the ante-apical from the apical area at, or close to, the apex of the claval suture.

Abdomen: ♂, last genital segment above with a projecting tube of greater or less length; underneath, genital valve triangular, its base extending across the entire breadth of the abdomen; genital plates long, triangular, outer margin sometimes convex.

SECTION A.

Crown, with six black spots, the two on the anterior margin largest, and continued on to the frons, frequently the spots are united. *Face* with transverse black streaks. *Elytra* yellowish, with more or less distinct, fuscous, longitudinal streaks between the nerves.....1. *sexnotata*, Fall.

Elytra greenish or pale greenish-white with deep brown or piceous streaks before and beyond the middle; apex of the clavus broadly brown or piceous.

2. *frontalis*, sp. n.

SECTION B.

Crown with four black spots, placed, two between the eyes and two on the anterior margin, continued on to the frons. *Face* without transverse black streaks. *Elytra* yellowish. *Clavus* with a large white patch, common to each elytron, margined with fuscous. *Corium* with a dark brown or fuscous spot about in a line with the apex of the clavus, and another of the same colour adjoining the apical areas..... 3. *variata*, Fall.

Elytra bright yellow, without markings. *Face* with a black spot at the apex.

4. *7-notata*, Fall.

CICADULA FRONTALIS, sp. n.

Fieb., Kat. der Europ. Cicad. Wien (1872) ?

SECTION A.

Crown with six black spots.

♀. Greenish or pale greenish-white. *Crown* with two black spots on either side between the eyes (frequently united), and another in front (the largest), passing over the anterior margin on to the frons. *Face* with a short, fine, longitudinal, black line, and 4-5 transverse ones of the same colour; *pronotum* with a more or less distinct brownish or piceous patch on each side of the centre. *Scutellum* with a triangular black spot adjoining each basal angle. *Elytra* with several elongate and more or less united piceous streaks. *Legs* yellow; 3rd pair of thighs with a longitudinal black streak down the centre.

Head yellow or greenish-yellow. *Crown* with six black spots, the two in front the largest, and passing over the anterior margin on to the frons. *Face* with a short, fine, longitudinal black line, and four to five transverse lines of the same colour; side and apical margins very narrowly black; *loræ* narrowly margined with black. *Antennæ* pale brownish; *setæ* fuscous towards the apex.

Thorax—*pronotum*: pale yellowish or greenish-white; disc with a large, more or less distinct, brownish or piceous patch on each side of the centre; anterior margin with a short, transverse, sometimes interrupted, black streak extending from the inner margin of the eyes towards the middle; lateral margins generally with a small black spot towards the anterior angle. *Scutellum* yellow, with a triangular black spot adjoining each basal angle; transverse channel very narrowly black, its extremities terminating in a minute black spot. *Elytra* greenish or pale greenish-white. *Clavus*: inner marginal nerve from the base to beyond the scutellar angle black, then pale yellowish; apex black; disc, with three short brownish or piceous streaks running diagonally from the scutellar angle, these are sometimes united, but generally the nerves and a very narrow line next the claval suture are pale; apex broadly brown or piceous; claval

suture very narrowly black. *Corium*: nerves pale; down the claval suture a brown or piceous streak, widest at the apex; anterior or costal area with a small brown or piceous patch in the middle, inner nerve at the base narrowly brown; discoidal and ante-apical area, in a line with each other, brown or piceous; central ante-apical area with a brown or piceous patch near the base, its lower margin frequently prolonged in the middle into a tooth; apex with a more or less defined brownish patch; apical area, in a line with the discoidal area, brown or piceous; appendix somewhat brownish. *Legs* yellow; *thighs*: 1st pair on the inside with a row of spots next the upper and lower margins; 2nd piceous, base and apex yellow; 3rd yellow, with a longitudinal black streak down the centre; *tibiae* with a brownish shade; 1st pair: outer margin with a narrow, black, longitudinal line; 2nd with one, 3rd with two rows of black punctures set in pairs down the outer margin, between which are a few smaller ones; apex narrowly brown; spines brown; *tarsi* yellow; apex of all the joints narrowly, and *claws*, black.

Abdomen above, black; posterior margin of the segments and sides narrowly yellow, last segment more broadly margined than the others; beneath yellow, anterior and side margins of the segments black; last genital segment above, black, beneath and sides yellow; the spinose hairs brown. Length $1\frac{1}{8}$ line.

When the insect is in repose, the following greenish or pale greenish-white characters are perceptible on the elytra:—*Clavus*: base broadly and a smaller space round the apex of the central nerve, common to each elytron; *corium*: base broadly; disc posteriorly with two narrow streaks, as also the anterior or costal area. Larger and stouter than *C. sexnotata*, and with the markings on the elytra more distinctly defined, somewhat as in *C. variata*.

All the specimens captured are females. They were taken by the Rev. T. A. Marshall in a swampy place near Lasingham, in September; no doubt some weeks too late for the other sex.

(To be continued).

NOTES ON BRITISH HEMIPTERA.

1. ORTHOSTIRA NIGRINA and MACROPHTHALMA.

I have a British *Orthostira* in my collection which agrees with the description of *macrophthalma*, given by Messrs. Douglas and Scott in your December number, p. 173, in having two rows of meshes on the sutural area of the elytra, but disagrees in having a pale 3rd joint to the antennæ. I have also before me two specimens of a species from Scotland, sent to me by Mr. Champion, agreeing with their notes on *nigrina*, but having black or very nearly black antennæ. Now, the arrangement and number of the meshes in my specimen with the pale antennæ is not the same on the two sides; on one the sutural area has two regular rows of meshes extending almost to the apex of the discoidal cell, on the other a third row is set up about the middle of the suture; this would suggest that the number and disposition of the meshes may be a variable character. The colour of the antennæ also might depend on the

maturity of the specimens, and as there appears to be no difference in the comparative thickness of the antennæ in the specimens before me, I am inclined to think that the *nigrina* and *macrophthalmia* of Messrs. Douglas and Scott may be varieties of the same species.

I see that Messrs. Douglas and Scott have corrected several errors in the synonymy, &c., of our *Hemiptera*, but I think the following corrections still want making.

2. *GEOTOMUS PUNCTULATUS*, Costa.

Æthus lavis, D. and S.

For this synonymy I have to thank Dr. Puton, to whom I sent specimens.

3. *BERYTUS*, n. sp.?

B. Signoreti, D. and S., nec Fieb.

Fieber places *Signoreti* in the division "membrane wide, nearly a half wider than corium," which also includes *montivagus*. Now, in our species the membrane is not so wide as this, and is no wider than that of *cognatus*, which Fieber puts in the next division. The markings of the membrane on ours are also much less distinct than Fieber's description would suggest. This latter character, of course, may be variable. I have, however, two specimens from M. Meyer-Dür sent to me as *Signoreti*, Fieb., which agree exactly with Fieber's characters, and are quite distinct from our British form, being similar in shape to *montivagus*, with the same largely rounded membrane, but easily distinguishable from it by several characters. These, I believe, to represent the true *Signoreti*, Fieb., and if I am correct, our British species will require a new name.

4. *NYSIUS BRUNNEUS*, Fieb.

N. Scotti, E. Saund., E. M. M., vi, 1.

While correcting what I believe to be other people's mistakes, I am glad to have an opportunity of correcting one of my own. I am indebted to Dr. Puton for the above synonymy. I have also recently received a specimen of *Nysius helveticus* from M. Frey-Gessner, of Geneva, the characters of which appear identical with those of the present species, and unless I am mistaken, *N. obsoletus*, Fieb., must be a very nearly allied species, if distinct.

5. *CAMPYLOSTIRA BRACHYCERA*, Fieb.

C. verna, D. and S., nec Fall., nec Fieb.

Fieber describes and figures *verna* with only one row of meshes on each side of the thorax. Messrs. Douglas and Scott describe *verna* as having two rows of meshes in front and one behind, a character also of *brachycera*; from this I suspect that their *verna* is only the developed form of *brachycera*; whereas, *verna*, Fall., Fieb., is a distinct species.

6. *PHYTOCORIS TILIÆ*.

P. marmoratus, D. and S.

I must here declare my conviction that *marmoratus*, D. and S., is only a dark variety of *tiliæ*, although I think Mr. Scott still believes them to be distinct. I can perceive no structural difference whereby to distinguish them; nor can I see any difference in the position or arrangement of the markings. *Tiliæ* is a very variable species; and I have a series which I feel sure would prove to any one that *marmoratus* is only one of its extreme varieties.

7. Genus?—OBSOURELLUS, Fall.

Atractotomus pini, D. and S.

I am indebted to Dr. Puton for this synonymy; he places the species in the genus *Agalliaestes*, but I cannot think it belongs there, neither does it seem to me to agree with *Atractotomus*, although closely allied to it. I think it might well be considered as the representative of a new genus.

8. TINICEPHALUS OBSOLETUS, D. and S.

This species, following Fieber's views, must be removed from this genus, the only British exponent of which is *hortulanus*, Mey. The wing cell has no hook, the character of the division in which *Tinicephalus* occurs; how Fieber came to put it in this genus I know not, as it has to me neither the shape nor the look of a *Tinicephalus*. I should have called it a *Litosoma*, but if it is to enter that genus its name will have to be changed, as an *obsoletus* already exists therein.

9. PSALLUS ALNI, Fab.

P. dilutus, D. and S., ? Fieb.

I have had an opportunity, through the kindness of Mr. Douglas, of examining one of the type specimens of *dilutus*, D. and S., and so far as I can judge, it is simply a pale specimen of *alni*, Fab. Fieber's *dilutus* appears from his description to be a large species, in fact the largest of the genus,—long $2\frac{1}{2}$ lin.; whereas *dilutus*, D. and S., is only $1\frac{1}{2}$ lin.—EDWARD SAUNDERS, 2, Spencer Park, Wandsworth.

OBSERVATIONS ON THE FOREGOING NOTES.

1. ORTHOSTIRA NIGRINA and O. MACROPHALMA.

The question involved is not yet removed from the domain of opinion, and it awaits the solution to be derived from facts.—J. W. D.

2. GEOTOMUS PUNCTULATUS.

I am not disposed to question the accuracy of the identification made by Dr. Puton.

In the Ent. Monats., viii, p. 233 (1864), Dr. Fieber referred his previously described *C. Helferi* to the older *C. punctulatus*, Costa, so that it is evident he knew the latter species; but when, in 1868, I sent him *Æthus laevis*, D. and S., he not only did not recognize it as *C. punctulatus*, but, comparing it with the latter and *C. nigrinus*, pointed out differences which he considered made it distinct from both.

Mulsant and Rey, in the "Punaises de France," ii, 36, 1 (1866), not only followed Fieber with regard to *C. Helferi* being equivalent to *C. punctulatus*, but added to the synonyms, *C. bifoveolatus*, H.-S., and *C. aciculatus*, Fieber, and made the species the type of the new genus *Geotomus*. Mr. Saunders argued in the Ent. Mo. Mag., viii, 110 (1871), that our British insect was only a variety of *C. nigrinus*, Fab.—J. W. D.

3. BERYTUS SIGNORETI, Fieb.

My examples agree with Fieber's description, including the breadth of the membrane referred to, and one of them was named by Fieber himself, so that there is no doubt of the correctness. Mr. Saunders's insects, not agreeing with the description, may possibly be the *B. pygmaeus* (Fieb.), Lethierry, Cat. des Hémipt., 2nd ed. (1874), or one of the new species described by Reuter (Oef. Vet. Ak. Förh., 1870), or by Ferrari (Hemiptera Agri Ligustici, 1874).—J. W. D.

5. *CAMPYLOSTIRA VERNA*, Fall.

I have put the unique British example under the microscope and find that the second row of meshes mentioned in the "British Hemiptera" as being on the front of the side margins of the pronotum is so stated in error, the said row of transparent meshes being really on the pronotum, adjacent to, but not on, the margins. Our species is the true *Tingis verna*, of Fallén. The question raised in the "British Hemiptera" as to it being the developed form of *C. brachycera* is still undetermined.—J. W. D.

6. *PHYTOCORIS MARMORATUS*, Doug. and Scott.

Surely Dr. Fieber, to whom this insect was sent with reference to its specific distinctness, must have also been possessed of specimens of *P. tilia* with which to compare it; and with his experience he would not certainly even have had a doubt about its difference. The insect must stand under the above name.—J. S.

7. ———— *OBSCURELLUS*, Fall.

Atractotomus pini, Doug. and Scott.

As long ago as May, 1868, in the Ent. M. M., iv, p. 268, our specific name for this insect was changed to *pityophilus*, Flor, as we had then received specimens of the last named from Flor proving the insects to be the same, and although we since became aware that further investigation had shewn this species to be identical with the *Phytocoris obscurellus*, Fall., we did not consider it necessary to make a further correction in this Magazine, as we are engaged upon the Catalogue of British Hemiptera, shortly to be published by the Entomological Society, in which this, as well as other corrections, will appear. The discovery that our insect was identical with *P. obscurellus*, Fall., was first pointed out by Reuter, in the Oefv. Vet. Ak. Förh., 1873, so that Dr. Puton merely followed him.—J. S.

8. *TINICEPHALUS OBSOLETUS*, Doug. and Scott.

We are content to let the insect stand where it is, as we believe the founder of the genus to be the most fit person to point out what he meant by it.—J. S.

9. *PSALLUS ALNI*, Fab.

Ps. dilutus, Doug. and Scott, ? Fieb.

We are willing to give credit to Mr. Saunders for his judgment, as far as it goes; but, because Fieber in his Eur. Hem. cites *P. dilutus* as the largest species in the group, and Mr. Saunders has examined the insect in question, and finds only a difference in shade of colour and size, we consider the matter to rest where it was. Besides, Fieber may have given the size of the insect at $2\frac{1}{2}$ lines instead of $1\frac{1}{2}$ line in error, or it may have been an overlooked error of the printer's.—J. S.

J. W. DOUGLAS and J. SCOTT, Lee: February, 1875.

Helophorus tuberculatus in Yorkshire.—I have much pleasure in recording the capture of this insect, in June last, in one of our Moor Bogs, where *Sphagnum* abounds. I identified the specimen from the description in the November number of this magazine, and Mr. Rye has compared it with one of the examples taken near Manchester.—T. WILKINSON, 1, Cliff Bridge Place, Scarborough: February, 1875. .

Natural History of Syrichthus alveolus.—Last summer, at the end of May and beginning of June, I captured a score or more of these butterflies, and shut them up in a glass cylinder with bramble sprays; they would not, however, spare me more than seven or eight eggs, which were laid on June 2nd or 3rd. The larvæ began to hatch on June 12th, and by the 18th four had come out; the rest died in the egg, having begun, but not being able to complete, their liberation from the shell. Three also of the four larvæ, that had been safely hatched, soon died, but the survivor thrived and grew; by July 9th, it was one-sixth of an inch long; by 17th, nearly half-an-inch long: about August 1st, it moulted for the last time, and soon attained its full length of about five-eighths of an inch, afterwards increasing only in stoutness; after the end of August it remained apparently dormant for days together, eating only at intervals; and about September 20th it became a pupa. Meanwhile, on July 29th, I had found another larva in the locality where I took the imago, which very nearly corresponded in growth with my bred example, but it unfortunately died without changing. Throughout, observation of their appearance was very difficult, owing to their habit of living in concealment, and, in fact, I believe the mortality which prevailed among my small stock was owing to disturbance caused by attempts at peeping, measuring, &c.

Probably, in freedom, the perfect insect has some constant method of depositing her eggs; but the few I had, having been laid in confinement, seemed to be placed on the upper or under sides of leaves, or on stems, indifferently: however, I think the newly-hatched larva (unless, perchance, as I have lately on reflection thought, it may prefer the blossom) chooses the upper surface of a small leaf for its habitat, and, settling itself along the midrib, at once spins several silken threads overhead for a covering, and feeds under that by eating away the outer cuticle; and when it has made a blotch of some little extent, it moves away, and repeats the process on another leaf: as it grows bigger, still choosing the upper surface of a leaf for its stand point, it forms its covering by drawing down another leaf over it, fastening the edges here and there with stout threads, and feeds away in the cave thus formed: when, however, it has attained some size, it think it must come out of its cave and eat the neighbouring leaves in the usual way, but I only once or twice saw either of my larvæ thus exposed of its own choice; the habit throughout the larval state is to be very sluggish, and a great part of the time must be passed by the larva in resting with its head curled round sideways towards its tail.

In the very limited time I could devote to searching for larvæ, I found numbers of deserted caves, and only one tenanted, and this seemed to prove that my examples in confinement acted pretty much as they would have, had they been at large; as mentioned above, I gave the butterflies bramble sprays to lay on, and I searched brambles for the larvæ, and came to the conclusion that stunted bushes with small leaves had the preference, the large juicy leaves of strong bushes apparently offering no temptation. I did not omit to look for the other plants on which the larva has been said to feed; in the same locality were some half-dozen plants of mallow (*Malva moschata*), but I am positive they bore no traces of larvæ; and there was not one plant of teasle. The wild strawberry, *Fragaria vesca*, has been suggested also as a likely plant, and I think it would probably occur wherever the butterfly is seen; but, as far as I feel justified in giving an opinion, I do not think there is any need to look for anything more than the bramble *Rubus fruticosus*.

The egg is globular, with base rather flattened ; the shell ribbed rather irregularly with about eighteen ribs, and transversely reticulated with very even fine lines, which do not stop at the ribs, but cross them, giving their edges a rough appearance which is not real, but only caused by the ribs, otherwise translucent, becoming opaque where the lines cross ; as usual, a small space on the top of the egg is covered only with very fine concentric reticulation ; the colour is a very pale green all over.

The young larva makes its escape by cutting a large round hole through the top of the egg ; in colour it is very pale green, with head and collar shining black ; every tubercular dot bears a pale bristle, longish and straight on the head and thirteenth segment, but on the other segments bifid, with the tips curved on either side like an unbarbed double fish-hook. When about one-sixth of an inch long, the colour is pale purplish-pink, the head still black ; when nearly half-an-inch long it is pale green again, the whole skin now thickly set with short straight hairs ; the bifid bristles having been parted with, I imagine, at the first moult. When full-grown, the length is rather over five-eighths of an inch, the figure very stout, the head horny, globular, and stuck like a knob on the second segment, which, however, is not so strikingly narrow as in *Thanaos Tages* ; the skin granulated in appearance ; the head and whole body covered thickly with short fine pale hairs ; the general colour a pale ochreous-green, the second segment pinkish, and a faint reddish tinge over the back of the other front segments ; a thin dorsal, and somewhat broader sub-dorsal line, not easy to be seen, of ground colour, and a faint spiracular line : the spiracles not much darker than the ground colour ringed with the same tint as the lines ; the belly freckly ; the head and collar very dark purplish-brown, the upper lip paler.

The pupa is enclosed in a cave between two or three leaves, similar to that in which the larva lives, but fastened with stouter silk, and the openings protected by a loose pale yellow webbing ; its length is not quite half-an-inch, the figure thick and stumpy ; the eyes prominent, the wing-cases well developed ; the whole skin rather rough ; the middle of the head, the eyes, and the back set with short stiff hairs : the ground colour reddish-grey, the wing-cases pinkish-grey ; the abdomen tinged with brownish-red along the back ; on the centre of the head, on the eyes, and on either side of the thorax above the wing-cases, are some blackish-brown marks ; there are smaller marks in pairs down the middle of the thorax, and there are transverse rows of spots on the segments of the abdomen, the largest and darkest being next the wing-cases ; the hairs are light brownish-red ; the anterior spiracle black, the others of the grey ground colour, ringed with black, and placed within the largest dark blotches. —JOHN HELLINS, Exeter: *February 11th, 1875.*

Occurrence of Myelois cirrigerella, Zk., a species new to Britain.—Specimens of this interesting little addition to our list of *Phycidæ* were submitted to Mr. Barrett, who kindly forwarded them to Prof. Zeller for determination ; and he has now returned them with the above name. They were taken June 30th, 1874, at light in the neighbourhood of Marlborough, Wilts ; some eight or nine specimens came in the course of the evening, but I only secured four in a condition worth setting, as they manifested a most pernicious affection for the flame of my candles ; the remainder succeeding in self-immolation. I did not meet with more on subsequent evenings, which I attribute principally to somewhat unfavourable weather. Some of the

specimens were quite fresh, others considerably worn. I suspect that June 20th will be about the time to look for it in general, and that it is out only for a short time. It flew between 11 and 12 p.m. I add a brief description, which, I trust, will enable others who may meet with it to recognise it.

Exp. al., 9 lines. Palpi moderate, porrected. Head and thorax bright yellow. Fore-wings glossy, rather pale brownish-ochreous, yellower towards base, immaculate. Hind-wings grey. Cannot be confounded with any other British species. When alive it has a very smooth and glossy appearance, and the yellow thorax is conspicuous.

Nothing appears to be known abroad of its earlier stages, but I think it possible that the larva may feed in decayed wood.*—E. MEYRICK, Trinity College, Cambridge: February 2nd, 1875.

Notes on some Tineina observed in 1874.—The spring commenced early, and included some very warm weather, the effects of which were noticeable during the summer in the accelerated development of several species.

Laverna epilobiella, Römer: I met with a few larvæ of this on the 22nd of June, then nearly full-fed, and expected they would have formed their cocoons simply "among the leaves of their food-plant," as is recorded; but each larva mined out a small space in a fresh leaf, and constructed its cocoon within it, nearly filling up the space.

Tischeria dodonæa: I was led to the discovery of the larva of this insect here in a rather singular way:—Having found a few larvæ of a saw-fly (*Blennocampa*) in August, on oak, I took home a few twigs of the plant to feed them on, and in a few days after I noticed on a leaf of one of the twigs a minute reddish-brown spot which grew daily somewhat larger, and when it had attained a diameter of one-fifth of an inch the darker concentric rings characteristic of this species were distinctly traceable under a lens. I visited the place where it was found in the beginning of October, when I collected about twenty larvæ. At the same time and place occurred the four British species of *Tischeria*.

Tischeria angusticollis: found several nearly full-fed larvæ of this on the 10th of August, but secured only a few, not thinking, until after arrival home, that possibly some of them might attain the imago state before next spring, which, however, some of them did, as I bred three before the end of the month; and, on visiting the place where they occurred on the 22nd of the same month, I saw one leaf containing a mine of this insect, with the empty pupa-skin projecting from it. No larvæ of this species were observable in September, but in October many were found, all quite young at the middle of the month, none being full-fed before the 21st.

Lithocolletis viminiella: bred this from willow as well as willow.

Cemiosoma Wailesella: collected numerous larvæ of this on the 10th of August, expecting to breed the moths next spring, but some of them were not inclined to wait so long, for twenty-nine appeared between the 21st and the end of August, and others in September. They were kept under gauze at an open northward window. I noticed a pair in copula.—J. E. FLETCHER, 9, Pitmaston Road, Worcester: January 27th, 1875.

* We think this habit scarcely probable.—Eds.

Helicopsyche-cases from Sikkim.—Lord Walsingham has just submitted to me for examination three cases of *Helicopsyche* from Sikkim, which he found (labelled 'Valvata') in a collection of shells belonging to Mr. J. Ponsonby. This, I think, is a new locality for cases of this nature. They are small, the largest 4 mm. in diameter across the lower end, the smallest $3\frac{1}{2}$ mm.; formed of very coarse grains of sand, with a considerable admixture of quartz. All are closed by an operculum, shewing concentric structure. For reasons already referred to by me in the Journal Linn. Soc., Zoology, vol. x, p. 201, I refrain from giving a name to this form.—R. McLACHLAN, Lewisham: February 2nd, 1875.

A probable heliiform case-making larva among the Curculionidæ.—Some time ago, Mr. H. W. Bates gave me some heliiform cases sent to him in a collection of *Coleoptera* from Mombas, East Africa, by the Rev. T. Wakefield. Mr. Bates thought they might be *Helicopsyche* cases: but, as they were made of tough silk, with some vegetable substance interwoven into it, and had an opening at the smaller end, I concluded at first they were Lepidopterous, and allied to *Psyche helix*, the cases of which they much resembled, though much larger. I cut all open. One was empty; another contained the remains of a larva which did not appear Lepidopterous; a third, to my astonishment, held the *débris* of a beetle of the family *Curculionidæ*, and apparently allied to *Otiorhynchus*. No notes concerning them accompanied the consignment, but as all other insects in it were beetles, it is just possible that Mr. Wakefield was duly aware of the nature of the cases as belonging to the *Coleoptera*; and I think it best to record the facts as they presented themselves to me, in order that the matter may not be lost sight of.—ID.

ENTOMOLOGICAL SOCIETY OF LONDON: 25th January, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.—Anniversary Meeting.

After the reading of the Treasurer's Accounts and Report of Council for 1874, the Society proceeded to the election of Council and Officers for 1875. Messrs. A. G. Butler, G. C. Champion, F. P. Pascoe, and the Rev. R. P. Murray were elected in the place of outgoing Members of the Council. Sir S. S. Saunders was re-elected President, Mr. McLachlan Treasurer, Messrs. F. Grut and A. G. Butler Secretaries, and Mr. Janson Librarian.

The President read an Address, which was ordered to be printed, and the Meeting terminated.

1st February, 1875.—The President in the Chair.

C. Livingstone, Esq., of Tudor Road, Snarebrook, was elected an ordinary Member; and M. A. Sallé, of Paris, a Foreign Member.

Mr. S. Stevens exhibited a curious variety of *Noctua glareosa*, in which the ordinary dark markings between the stigmata in the anterior-wings were almost obliterated.

Mr. Champion exhibited *Amara continua*, a species recently detected as British (see Ent. Mo. Mag., No. 129, p. 207).

Mr. H. Druce exhibited selections from a collection of *Rhopalocera* recently received from Santarem.

Sir S. S. Saunders exhibited a nest of *Polistes gallica* from Corfu, partly manufactured from play-bills posted near where it was found, and shewing the various colours of the paper used by different 'strata' in the cell walls. In connection with this exhibition, and with Sir John Lubbock's recent remarks (at the Linnean Society) on the power ascribed to bees and other social *Hymenoptera* of communicating facts as to stores of food, &c., he mentioned that he had placed this nest (containing larvæ), with one imago, outside a window, but within Venetian blinds, covering it with a tumbler, which was removed in the morning, when the *Polistes* sallied out, and in due time brought with her two companions to assist in feeding the larvæ. Strangers intentionally added from other nests were attacked and driven away.

Mr. F. Smith stated that he had introduced *Colletes cunicularis* (a bee taken a few years ago in the Isle of Wight, and subsequently near Liverpool) into suitable localities at Shirley, in April, 1872; and in 1874 Mr. H. D'A. Power took an individual there (which was exhibited) proving that the attempt at colonization had been so far successful.

Mr. Butler read 'Contributions to the *Rhopalocera* of Australia.'

Mr. W. A. Lewis read a paper on 'Entomological Nomenclature.'

The President nominated Messrs. J. W. Dunning, F. P. Pascoe, and J. Jenner Weir as Vice-Presidents for the year.

15th February.—The President in the Chair.

F. H. Ward, Esq., of Springfield, near Tooting, was elected a Member.

Mr. Phipson exhibited a singular variety of *Strenia clathrata* from Basingstoke, the wings being nearly unicolorous (fuscous), with a few pale spots.

Mr. F. Smith exhibited a further collection of *Hymenoptera* from Calcutta, sent by Mr. Rothney. It consisted of 1573 individuals in beautiful condition, but with probably not more than twenty-five undescribed species.

Mr. Verrall exhibited a number of living fleas, taken two days previously from the ears of a rabbit near Lewes; they were gregarious in this situation, which condition he thought might be owing to the animal being unable to remove them by scratching, owing to the pendant nature of the ears. In connection with this subject, he alluded to a communication made to him by Mr. McLachlan, regarding a species of *Pulicidæ* from Ceylon, living gregariously, and closely packed (affixed by their probosces) on a small portion of the skin of the neck of a fowl, as exhibited at a recent meeting of the Microscopical Society, and in the possession of Mr. Curteis, of 244, High Holborn. He had once found a number of fleas just before the tail on a dog's back, thus, also, in a position from which the animal could not dislodge them.

Mr. Cole said he had found fleas in a hedgehog; and Mr. W. A. Lewis had observed them on a marmot in Switzerland.

Mr. Dunning called attention to a recent extract from a French paper, in which it was stated that a paint could be manufactured from cockchafers.

The Rev. R. P. Murray stated that Mr. Edwards, the author of the magnificent illustrated work on 'North American Butterflies,' was desirous of obtaining pupæ of *Pieris napi*.

NOTES ON ODONATA FROM NEWFOUNDLAND, COLLECTED IN 1874
BY MR. JOHN MILNE.

BY THE BARON E. DE SELYS-LONGCHAMPS.

LIBELLULINA.

Leucorrhinia hudsonica, Selys (Rev. des Odonates, p. 53), 1 ♂ from White Bay, similar to my type.

CORDULIINA.

Cordulia Shurtleffi, Scudder (Selys, Syn. Cord., p. 31), 1 ♀.

Epitheca cingulata, Selys (Syn. Cord., p. 68, ♀), 2 ♂, 3 ♀, from White Bay and Bonavista Bay. The following is a description of the ♂, which sex was previously unknown to me:—

Length of abdomen, 40 mm.; of posterior wing, 37 mm.

Wings scarcely tinted; the anal border of the posterior slightly ochraceous in the anal triangle next the membranule, this latter black, white at the base; neuration black (the costa slightly brown exteriorly up to the nodus); pterostigma brown, placed between two thickened black nervules (4 mm. long); discoidal triangles with transverse nervules in all the wings (or aberrantly free in one), followed by two to three cellules, and afterwards by two rows of post-trigonal cellules; 8—9 ante-cubital nervules, 6—7 post-cubital, in the anterior wings. Head and thorax bright bronzy-brown; lower lip yellow, the upper shining blackish; rhinarium yellowish; occiput, vertex and front bronzy-blackish, the latter yellowish at the sides. Front of the thorax somewhat coppery-green (*without pale bands*). Abdomen bronzy-blackish, the sides of segments 1—3 pale brown; terminal suture of segments 2—9 *forming a yellowish circle*. Legs black; the anterior and intermediate femora reddish-brown; the posterior femora *not swollen*. Anal appendages black. The superior equalling the 9th and 10th segments (4 mm. long), distant and acuminate at the base, almost straight and cylindrical in their first third, abruptly elbowed and turned downward, one against the other, at a slightly obtuse angle in their last third, the slender points *crossed and curved upward*; they are pubescent, and have, at their base exteriorly, *a small acute tooth*, and the elbow is thickened exteriorly, forming a tubercle (*but not a tooth*). Inferior appendage one-third shorter; viewed laterally slightly curved upward; the apex nearly as broad as the base, truncate, and even forked, in consequence of the two external angles being slightly prolonged and curved upward.

N.B.—The form of the appendages proves that this species is allied to *tenebrosa*. It is separated from it especially by the yellow circle at the abdominal sutures, by the very long pterostigma, the absence of pale bands on the sides of the thorax, the femora not swollen, and, finally, by the inferior appendages being furcate at the apex. It much resembles *albicineta*, but in the latter the inferior appendage of the ♂ is *triangular*, and the vulvar scale of the ♀ strongly bilobate.

Epitheca forcipata, Scudder (Selys, Syn. Cord., p. 61), 1 ♀, from

White Bay. The coloration is very similar to that of the ♀ of *elongata*. It is of the same variety noticed from Fort Resolution, and differs from the European *arctica* by the two conspicuous oval yellow bands on the sides of the thorax.

ÆSCHNINA.

Æschna hudsonica, n. sp., 1 ♂, 4 ♀, from White Bay (also Canada).

Length of abdomen, ♂, 59 mm., ♀, 55; length of inferior wing, ♂, 49 mm., ♀, 50.

♂. Very similar to *juncea* in size, coloration, the two yellow bands on the front of the thorax, and the two broad bands on the sides, as well as in the three little tubercles on the 10th segment, *but the pterostigma is slightly shorter and blackish*.

♀. Separated from *juncea* by the *shorter* pterostigma ($3\frac{1}{2}$ mm. in length; $4\frac{1}{2}$ in *juncea* of the same size).

Æschna clepsydra, Say. (?), 2 ♀, one indicated as from Castor River. Similar to the ♀ of my collection (received from Dr. Asa Fitch), but my ♂ from Canada does not correspond with Hagen's description. The ♀ differs from *hudsonica* by the face having a transverse *pale red* line between the front and the nasus (this line is *black* in *hudsonica* and *juncea*). Separated from *borealis* by the eyes being less longly contiguous.

GOMPHINA.

Gomphus —?, 1 ♂, from Terra Nova River, only just emerged.* I cannot determine the species, because the appendages are not in a condition for examination. However, from the size and coloration it appears to be allied to *G. parvulus*, Selys (of Nova Scotia). It is important to note the excessively short and numerous spines of the posterior femora, which are very useful as a clue to the inferior groups of the genus *Gomphus*. The appendages of this individual (in the state they are now in) have some analogy with those of *Ophiogomphus*.

AGRIONINA.

Ænallagma boreale, n. sp., 1 ♂, 1 ♀, the former from White Bay.

Length of abdomen, ♂, $21\frac{1}{2}$ mm., ♀, 24; inferior wing, ♂, 18 mm., ♀, 19.

Stature and coloration of *cyathigerum*, but differs as follows:—♂ (1) The blue post-ocular spots rather broader. (2) The black superior "comma" (*virgule*) of the second lateral suture of the thorax prolonged into a line on the suture up to the base of the posterior legs. (3) The sides of the 1st segment of the abdomen with a fine, *oblique*, curved black mark, parting superiorly beyond the base and touching the end of the segment posteriorly. Under-side of the 2nd segment *black*, this colour

* Mr. Milne was present at its birth. I possess the puparium.—R. McL.

dilated and forming two angles near the genital organs. The posterior dorsal spot T-shaped, with the upper line of the T broadly lunate, and the tail thickened. The upper-side of segments 3—6 with a black posterior spot analogous to those of *cyathigerum*, but broader laterally, in form of terminal rings touching the ventral suture, which is broadly black; these spots include (against the posterior articulation) a blue mark, and are somewhat notched near the ventral suture on the 5th and 6th segments, whereas, on the 3rd and 4th they are prolonged into a fine line towards the base along the ventral side. (4) Anal appendages analogous; but the superior (half as long as the 10th segment) thicker when viewed from above, because the point which exists in *cyathigerum* before the apex is here transformed into a little plate, almost square, inclined downward, one directed against the other, almost as in *ebrium*, but smaller; viewed laterally these appendages are thick, as long as the 10th segment, yellow, black at the point, slightly thicker and more erect than in *cyathigerum*.

♀. The ground colour is pale reddish, the spine of the 8th segment long. It differs from *cyathigerum* as follows:—(1, 2, 3, see the description of the ♂); (4) The second segment has no black band, but a simple dorsal posterior spot, almost as in the ♂, lanceolate anteriorly; the bronzy spots less extended above on the 3rd to 6th segments, not commencing till after the 1st quarter, where they are pointed, and then suddenly dilated in the last third (as in the ♂).

N.B.—The two sexes differ from all the allied species by the oblique black line on the sides of the 1st segment, thus resembling *Agrion concinnum*. (This line is found in *Æ. robustum*, n. sp., from California, of which I know only the ♀, but this is allied to *durum*, having four ante-nodal cellules, and not three as in all the other species). The ♂ is also unique in the sub-genus by the black ventral band of the second segment, and the ♀ by that segment having only a simple hastate dorsal spot, and by the eighth segment being pale red. By the internal plate-like internal dilatation of the superior appendages it approaches *ebrium*, but in this latter the inferior appendages are equal to the superior, and the coloration of the abdomen is quite different.

Liège: February, 1875.

[NOTE.—The materials from which this paper has been drawn up were collected in various parts of Newfoundland by my young friend Mr. John Milne, F.G.S., who has spent two summers and autumns in Newfoundland. Before starting on his last expedition I urged him to collect any insects he might find, believing that less is known of the entomology of Newfoundland than of any other British colony. He brought an extensive miscellaneous assemblage in all orders, but principally *Lepidoptera*. The few individuals in other groups of *Neuroptera* are scarcely worth noticing at present; but there was a very fine ♂ specimen of *Neuronia postica*, Hag.—R. McLACHLAN.]

ON A COLLECTION OF BUTTERFLIES MADE BY MR. JOHN MILNE IN NEWFOUNDLAND.

BY H. W. BATES, F.L.S.

Mr. John Milne, during his above mentioned journey round Newfoundland last year, collected sixteen species of Diurnal *Lepidoptera*. No notice of the productions, in this department, of this part of North America having, as far as I am aware, been published, I have undertaken at his request to name the species, and draw up the present list of them. It will be seen that the butterfly-fauna of Newfoundland offers some peculiarities (as compared with that of the United States), and further additions will be looked for with great interest. That many more inhabit the island cannot be doubted, inasmuch as the present collection contains no *Colias* or *Hesperiidæ*, and furnishes much fewer species than the more northerly region of Labrador, concerning which an excellent paper was published by Moeschler in the Wiener Entomologische Monatschrift.

Papilio Turnus, Lin. Both sexes, agreeing closely in size, colours, and markings with specimens from Nova Scotia and West Canada, but differing much from others found in Southern Atlantic States, being smaller and paler, and having much narrower black borders to the hind-wings.

Found in the latter half of July at Bonavista Bay and in other localities, about long grass on the borders of rivers.

Papilio brevicauda, Saunders, in Packard's Guide, p. 278. Many examples, nearly all females, from Betts Cove and Terra Nova River.

Although this is evidently only a local form of *P. Asterius*, it differs so much in form, as well as in markings, that it well deserves a distinctive name. The single male brought home by Mr. Milne is too much shattered for comparison, but the ♀ shows a strongly rounded outer border to the fore-wing, and the caudal lobe of the hind-wing is not more than half the length of the same part in the ordinary *Asterius* of the Atlantic States.

Pieris oleracea, Harris; var. *frigida*, Scudder, Proc. Bost. Journ. Nat. Hist. (1861), p. 181. The common species of *Pieris* of Newfoundland. Mr. Milne's numerous specimens are from St. Heliers, Bonavista, St. John's, and other localities. As a rule, they are more strongly marked with black than the *oleracea* of the States, not only along the veins, both above and beneath, but at the bases of the wings and apex of fore-wing. Some females are scarcely distinguishable from the dark-veined variety *bryoniæ* of the European *P. napi*, and have the dusky sub-discal spots of that species; in no male, however, have I remarked the sub-discal spot.

One specimen of this butterfly was taken at the small isolated islet called Funk Island, to the east of Newfoundland.

Argynnis Freja, Thunberg. Two examples. Compared with specimens from Lapland, the Newfoundland form is decidedly of a brighter (*i. e.* more orange) colour on the upper surface, and the black submarginal circumflexes are detached from the marginal spots, this latter feature probably arising from the smaller dimensions generally of the black markings. Beneath, all the characteristic markings are the same as in the Lapland *Freja*; but the general colour of the hind-wing is ruddier, and the central black flexuous band is less black; the marginal buff triangles in shape are rather linear than triangular. All these differences are so many points of resemblance to *A. polaris*; but on comparing the Newfoundland *Freja* with a specimen of *polaris* from Labrador, I find that the two differ far more than they agree. The distinctive characters are well pointed out by Moeschler in his paper on the Lepidopterous Fauna of Labrador (Wiener Entom. Monatschrift, 1860, p. 339).

Argynnis Chariclea, Schneid., Hübn. One specimen, Betts Cove. Agrees well with Lapland specimens.

Argynnis Atlantis, W. H. Edwards, Proc. Ac. Nat. Sci. Phil., 1862. Many specimens, agreeing with others from the Catskill Mountains, New York, sent to me by Mr. Edwards.

Vanessa (Grapta) comma, Harris. One example, agreeing with specimens from New York, sent me, under this name, by Mr. W. H. Edwards.

Vanessa Antiopa, L. Sandy Point, George's Harbour, 1st October. Dark and much irrorated wing-borders.

Vanessa Milberti, Godt. Apparently a common insect.

Pyrameis cardui, L. Many examples.

Chionobas Taygete, Hübn. "Rantem; flying among long grass." Agrees pretty well with Lapland specimens.

Cænonympha inornata, W. H. Edwards, Proc. Ac. Nat. Sci. Phil., 1861, p. 163. One example, ♂, agreeing well with the description above cited. Mr. Edwards' original specimens were from Lake Winnipeg.

Lycæna Scudderi, W. H. Edwards, Proc. Ac. Nat. Sci. Phil., 1861, p. 164. One ♂, "Rantem." Mr. Edwards described the species from Lake Winnipeg.

Lycæna Couperi, Grote, Bull. Buffalo Soc. Nat. Sci., i, p. 185 (1873); *Glaucopsyche Couperi*, Scudder, *ibid.*, Decem. 26, 1873. Described from specimens taken at Anticosti by Mr. Couper. Mr. Milne's collection

contains numerous examples captured among bushes on the north-west arm of Bonavista Bay. They agree very well with Mr. Scudder's description.

Lycæna Aquilo, Boisdl., Icones, pl. 12, figs. 7 and 8. One specimen only, taken at Rantem.

Lycæna Lucia, Kirby, Fauna Bor.-Amer., iv, p. 299, pl. 3, figs. 8 and 9. Numerous examples of this widely distributed boreal American species, taken near Spruce Trees, at Rantem.

Bartholomew Road, Kentish Town, N.W.:

March 1875.

DESCRIPTION OF A NEW PULICIDEOUS INSECT FROM CEYLON.

BY PROF. J. O. WESTWOOD, M.A., F.L.S., &c.

I have lately received from H. N. Moseley, Esq., one of the naturalists of the exploring ship "Challenger," and also from my correspondent, Mr. Green of Colombo, Ceylon, numerous specimens of a minute species of flea, which attacks the domestic fowl in Ceylon, attaching itself firmly by its rostrum, in considerable numbers, around the eyes and neck of the birds, thus differing from the ordinary flea, which never fixes itself in such a manner as not to be able to disengage itself instantaneously; and also from the Chigoe, which burrows into the flesh of its victim, human or quadruped.

This new species is about two-thirds of the size of the common human flea, and is of a more rounded form, the back being much more arched; its body is much less strongly spined; the head is slightly angulated in front of the antennal cavities. The proboscis is ordinarily porrected, that is to say, the delicate lancet (which seems to me to represent the labrum, and which has six or seven minute serratures on its upper edge, but which was considered by Mr. Haliday to represent the lingua) and the two elongated mandibles forming the sheath of the former piece (and each of which has four rows, each with fifty-four minute denticulations) are generally stretched out in the same line as the body; the triangular maxillæ and the four-jointed maxillary palpi are deflexed, and the lower lip consists of an oblong and very delicate membrane with two flat equally delicate inarticulated plates at its extremity. This latter character separates the species from all the genuine fleas of the genus *Pulex*, and agrees with that of the Chigoe, forming the genus *Sarcopsyllus*, established by myself many years ago in the Transactions of the Entomological Society of London, but for which Herr Karsten has improperly taken up the old and most inappropriate generic name of *Rhynchoprion*. Hence I propose for this new Ceylonese flea the name *Sarcopsyllus gallinaceus*.

ON THREE NEW SPECIES OF *HYDROPHILIDÆ*.

BY D. SHARP, M.B.

Dr. Leconte, in the Trans. Am. Ent. Soc., 1874, p. 47, has published the characters of an aberrant new genus and species of *Hydrophilidæ*, found in Texas by Belfrage, and has named the insect *Sepidulum costatum*. When I was last in London, Mr. E. W. Janson presented me, in the presence of Dr. Horn, with a peculiar small coleopterous insect he had destined for me, and on looking at the specimen I recognized it as allied to a remarkable species in my collection from South America, resembling, at first sight, a small *Trox*, or a Heteromerous Coleopteron, but which, after examination, I had referred to the *Hydrophilidæ*; and, on its being handed to Dr. Horn for inspection, he declared it to be allied to a remarkable insect that had much interested Dr. Leconte and himself, and which the latter was just describing under the name of *Sepidulum costatum*. Dr. Leconte, knowing the interest I felt in his new genus, has been so kind as to send me a couple of individuals, and, on examining them, I find that both my species are really closely allied to the Texas species, so that I feel justified in describing them under the same generic name, although it must be admitted that some of the slighter characters given by Dr. Leconte as characterising the genus, must in such case be eliminated from the generic formula, and considered as specially characteristic of the Texas species. The genus *Sepidulum* appears to me to possess a greater affinity with *Spercheus* than with any other described genus; the most important points in which it differs therefrom appearing to be: 1st, the structure of the antennæ; 2nd, the structure of the abdomen; and 3rd, the fact that *Sepidulum* is characterized by Leconte as possessing but four joints to the tarsi, while *Spercheus* has five. The basal joint of the tarsi in *Spercheus* is, however, very short, and, on making a careful examination, even without dissection, of *Sepidulum trogoides* and *S. bullatum*, I am able to perceive that there is a fifth joint present in the shape of a minute basal joint concealed by the extremity of the tibia. As regards the structure of the abdomen, I may also state that I have no doubt this will prove also not be important; *Spercheus emarginatus* has the abdomen formed of five well developed, finely pubescent, ventral segments; while of *Sepidulum* Leconte says, "the abdomen is deeply withdrawn in the cavity of the elytra; it is flat, and I can see but four ventral segments, the last is rounded at tip and vaguely impressed each side; there may however be five segments, the first being invisible on account of the prominence of the metasternum and the contraction of the abdomen."

After examining, as well as I can without the aid of dissection, the larger species of *Sepidulum* here described, I feel little hesitation in stating my opinion that the abdomen in *Sepidulum* will be found to be composed of six horny ventral plates, and similar in structure and functional value to the abdomen of *Amphiops*, viz., a basal segment placed in a vertical direction immediately behind the coxæ, so as to be quite invisible except on dissection, a second segment reduced in size to an extremely narrow band, which is placed at right angles to the basal segment, and four large apical glabrous segments; whereas in *Spercheus emarginatus* the five apical segments are each about equally developed and are pubescent, the basal segment being glabrous and similar in form and position to that of *Sepidulum*. The difference then in structure of the abdomen in *Spercheus emarginatus* and *Sepidulum* will, I believe, be found to consist in the great reduction in size of the 2nd horny segment in *Sepidulum*, and in the apical segments being glabrous and therefore unfitted for detaining air for respiratory purposes. Precisely in these points the *Spercheus* from Australia here described stands intermediate; in it the four apical segments are large and glabrous, while the segment immediately behind the coxæ is pubescent, but its surface is about half cut away on each side in adaptation to the coxæ.

The characters furnished by the legs and abdomen seem to me therefore to indicate rather the affinity of *Sepidulum* with *Spercheus* than the contrary. On the other hand, the antennæ remain very different in the two genera, the structure in *Sepidulum* shewing no approach to the peculiar structure of these organs in *Spercheus*.

It is important to recall that *Spercheus* carries its eggs in a sac about with it, the sac being placed on the under surface of the hind-body; the structure of the abdomen, and the ample elytra (when the sac is attached and retained in position by the coxæ and femora), allowing it to find complete protection. *Sepidulum costatum* also carries and protects its eggs in a similar manner: not only does the structure of the abdomen indicate this, but I have direct evidence of the fact, inasmuch as one of the two specimens sent me by Dr. Leconte had, when it reached me, its egg sac still attached and containing a few ova.

The modifications of structure of the ventral segments in the group *Hydrophilidæ* are of singular interest to the student, being controlled as they are by three, if not more, important functional relations; viz.: relations to respiratory needs of aquatic life; 2nd, protection of eggs by their being carried about by the female; and

3rd, adaptations to modifications of hind coxæ for aquatic locomotion: the comprehension of these modifications and their functional values will facilitate the classification of the members of the group.

SEPIDULUM TROGOIDES, *n. sp.*

Ashy-red, antennæ and palpi yellow, thorax produced in the middle over the head, the sides indentate in an irregular manner so as to be ragged; elytra with suture and margin elevated, and each also with three costæ, the middle one interrupted near the base.

Length, 3 mm.

Head granulate above, the eyes completely divided by the canthus. Thorax forming a broad lobe in the middle over the head; on this lobe are two elevated lines, contiguous near the front, then diverging till behind the middle, when they become abruptly approximate, outside these lines is another irregular elevated one on each side; its upper surface is made rough by elevated granules; the sides are ragged and indented, but narrowed behind, so that the base is much narrower than the front. The elytra have, between the raised lines, coarse punctures, arranged in rather irregular rows, two rows between each of the middle costæ, and four between the outer one and the external margin. Metasternum granulated, with a slight depression in the middle at the extremity. Legs rather stout, rough; tarsi and claws moderately large.

South America, or possibly Mexico.

This insect is rather closely allied to *S. costatum*, Lec., from Texas; besides the differences in the sides of the thorax and the sculpture of the elytra, the only important structural characters I notice to distinguish it therefrom are the completely divided eyes, and the considerably larger tarsi and claws.

SEPIDULUM BULLATUM, *n. sp.*

Blackish, posteriorly reddish, on the upper surface with elevated metallic tubercles; legs stout, reddish, antennæ and palpi yellow.

Length, 3½ mm.

Head with raised granules, the clypeus in front metallic; eyes large, incompletely divided by the canthus. Thorax much narrower than the elytra, a good deal narrowed towards the base, the front produced in the middle over the head as a broad lobe, in the middle of this near the front is a small elevated space, giving the appearance of another lobe; the sides are finely serrate, the surface is covered with granules, and has besides some large elevated pustules, some of which are metallic at their summit. Elytra roughened with sharp well-defined granules, and furnished with four rows of larger bullæ or tubercles, which are metallic at their summit, the outer row sub-obsolete. Metasternum very short, with a raised, transverse, polished space, occupying its middle. Legs reddish, stout; the tibiæ rough, with longitudinal lines; the hind femora angulate beneath in the middle.

India. A single specimen, for which I am indebted to Mr. E. W. Janson.

Besides the distinctions in sculpture, this species differs from *S. costatum*, Lec., by the much stouter legs.

SPERCHEUS PRISCUS, n. sp.

Brownish-yellow, with the margins of the upper surface paler; thorax very short and transverse, with the sides serrate; elytra coarsely punctured, and with some not very distinct elevated costæ, the sutural costa short, and strongly elevated; the margins explanate.

Length, 4 mm. Breadth, $2\frac{1}{2}$ mm.

Much narrower than the European *S. emarginatus*; like it, covered with a crust concealing its sculpture. Head with the sides of the clypeus much raised, depressed and emarginate in front, its surface uneven, the front part but little punctured, the hinder roughly but indistinctly punctured. Thorax narrower than the elytra, very short, the front angles prominent, the sides serrate, the middle part like the head brown in colour, the sides yellowish, the sculpture of the centre rough but indistinct, the sides nearly smooth. Scutellum elongate, smooth, and shining. Elytra very convex, yellowish, irregularly maculated with brown, with four costæ; the internal one strongly elevated at the base, in the middle almost absent, then again a good deal elevated at the extremity; the 2nd and 4th costæ reach quite to the extremity, the 1st and 3rd do not; the interstices are very coarsely punctured. The four apical segments of the abdomen are glabrous and shining, the basal one, as well as the sternum, dull and pubescent. Tibiæ rather strongly serrate externally; basal joint of tarsi very indistinct.

Rockhampton, Queensland.

Thornhill, Dumfries:

February 23rd, 1875.

NOTES ON BRITISH *TENTHREDINIDÆ*, WITH DESCRIPTIONS OF TWO NEW SPECIES.

BY P. CAMERON, JUN.

STRONGYLOGASTER FEMORALIS, sp. n.

S. niger, nitidus, pronoti limbo, tegulisque albidis, abdomine cingulo lato rufo; pedibus testaceis, femoribus fere totis nigris; alis hyalinis, stigmate nigricante. ♂ ♀.

Long. $3\frac{3}{4}$ lin.

♀. Antennæ filiform, black, shorter than the thorax and abdomen. Head shining, totally black. Thorax black, shining, glabrous; pronotum broadly edged with sordid white; tegulæ white; cenchri small, obscure white. Abdomen black, less shining than the thorax; the segments not smooth as in *S. mixtus*, but in furrows; the four middle segments red, beneath they are also red, but the sides are

edged with black ; the apex is acuminate, the cerci moderately long. Wings hyaline, the nervures, costa and stigma black. The marginal nervure is placed at some distance in front of the 3rd sub-marginal one. The feet are sordid testaceous ; the femora black, except at the apices and at the bases of the posterior pair ; the knees have a yellowish hue ; the posterior tibiæ are darker than the four anterior ; the posterior tarsi fuscous.

The above description serves equally well for the ♂, *mutatis mutandis*. The antennæ are not longer than the body.

S. femoralis comes nearest to *S. mixtus*, Kl., from which it is easily recognized by the marginal nervure (in the ♂) not being joined to the 3rd sub-marginal one ; the black colour of the femora and mouth, and the broader red band of the abdomen, which has also its apex much more acute.

Both sexes were taken on the Gleniffer Braes, near Paisley, three years ago in June.

THE BRITISH SPECIES OF DINEURA.

So far as I can make out, Stephens describes only four species of *Dineura* (exclusive of *hemichroa*) in his "Illustrations," namely : *Degeeri*, *verna*, *parvula*, and *fuscula* ; but evidently he had not the true exponent of the last species, as will appear from the reasons given below. The following are the species known to me as natives of Britain ; and probably, in course of time, others will be added when the country has been better explored.

Dineura Degeeri, Kl., = *Nematus varius*, Lep.—This is the commonest species, and is found in most places in early summer among birch ; the larva is got on the same plant in the autumn. Thomson places this and the next three species in the genus *Nematus*. All the species are subject to great variation in the neururation of the wings.

D. stilata, Kl.—Apparently a not uncommon species. Here the larva feeds on *Pyrus aucuparia* ; and at Worcester Mr. J. E. Fletcher finds it on *P. torminalis*. A common variety occurs with only one marginal cell in the anterior wings.

D. testaceipes, Kl.—This species has been taken by Mr. James Hardy in Berwickshire, Dr. Sharp at Dalry, and myself in Inverness-shire. The commonest form met with in this country (and it is also that which Thomson describes) has the abdomen nearly all testaceous beneath. It is, I am almost certain, identical with *D. ventralis*, Zaddach (*Beschreibung neuer oder wenig bekannter Blattwespen*, p. 10, fig. 3). The alar neururation in most of my specimens does not quite agree with Zaddach's figure, but in one example it does ; and at the best very

little reliance can be placed in the neururation, so variable is it. But it may be after all a distinct species, for it is stated by Zaddach (*l. c.*) that Herr Brischke had bred *testaceipes* as well as *ventralis*, a statement that would lead one to conclude that the larvæ of the two differed. The larva of *ventralis* only is, however, described, and it feeds, like *stilata*, on *Pyrus aucuparia*. The other variety of *testaceipes* is a little larger; it has the abdomen quite black, or with only a portion of the anal segment testaceous; and the antennæ have the under-surface only very faintly testaceous. This is, I presume, the true *testaceipes* of Klug and Hartig.

D. verna, Kl., = *Tenthredo punctigera*, Lep., = *Selandria biloba*, Ste. (*var.*), Ill. vii, 54, 39, = *Dineura opaca*, Htg. (*nec Tenthredo opaca*, Fab.), = *D. pallipes*, Htg. (*var.*), = *D. dorsalis*, Foerster (*var.*), = *Nematus opacus*, Thoms.

DINEURA SELANDRIIFORMIS, *sp. n.*

D. nigra, sub-nitida, ore, tegulis, pedibusque albidis; pronoto fere toto, ventre subtilius, anoque pallide rufescentibus; femoribus anticis basi, posticis fere totis, posticis tarsis et tibiæ dimidio apicali, nigris; alis hyalinis, stigmate fusco. Long. fere 2½ lin.

♀. Antennæ about the length of the head and thorax, black, moderately thick, the 3rd and 4th joints nearly equal. Head black, very slightly downy; the clypeus and labrum white. Thorax black, shining, slightly downy; the pronotum almost entirely reddish; the tegulæ white. The cenchri are scarcely distinguishable. Abdomen of the length of the head and thorax, black above, the sides, extreme apex above, and ventral surface, dull reddish. Wings hyaline, costa and stigma fuscous, the costa a little paler than the stigma; the 1st sub-marginal nervure is very faint, the 3rd sub-marginal cell is longer than broad, widest at the apex. The marginal nervure is received a little in front of the middle of the 3rd sub-marginal cell; the 2nd recurrent a little in front of the 2nd sub-marginal. Legs testaceous; anterior femora at the base slightly, posterior entirely (except the knees), the apical half of the posterior tibiæ, and the posterior tarsi, black, the four anterior tarsi faintly fuscous.

There is a variety of *verna*, having some resemblance to this insect, but differing from it in the following points: the marginal, 2nd sub-marginal, and 2nd recurrent nervures are all joined together; it has the body much more downy, larger and stouter; the antennæ are thicker, and apparently shorter in proportion; and, finally, the posterior tibiæ and tarsi are white.

One example has been taken at St. Albans by the Rev. T. A. Marshall.

D. parrula, Kl.—This is described by Stephens (Ill., vii, 52, 31), but I have never seen a British specimen. It is placed by Thomson in *Blennocampa*, next to *B. pusilla*.

D. fuscula, Kl.—This is also described by Stephens (Ill., vii, 50, 24); but as Mr. F. Smith could not find the true *fuscula* (which I sent to him to be compared) among his specimens, I suppose that Stephens had quite another insect, perhaps *Blennocampa pusilla*, which Hartig states is the ♀ of *fuscula*; but Zaddach has corrected this error. The only example that I have seen (which was taken in in Cadder Wilderness in May) has only three sub-marginal cells as in *Dolerus*; and this fact makes me think that *Dolerus* (*Pelmatopus*) *minutus*, Htg., is the same species, for it agrees very closely as regards size and coloration with *fuscula*, or if not, I am certain that it should be placed in the same genus. If Thomson's views are to be followed, *D. fuscula* will require to be transferred to *Blennocampa*.

THE BRITISH SPECIES OF CLADIUS.

Without an examination of his types, it seems almost impossible to identify some of the species of *Cladius* described by Stephens, on account of the unsatisfactory nature of the descriptions. Mr. Smith, in his "Nomenclature of Hymenoptera," gives one species of *Cladius*, seven of *Trichiocampus*, and four of *Priophorus*; but, after an examination of a large number of specimens from England and Scotland, I have not been able to identify more than five species, as noted below, a number that is certainly more in harmony with the views of recent authors. I have also females of what are probably *C. Brullæi*, Dbm., and *C. Drewseni*, Thoms.; but I cannot be quite sure that they are correctly named until I get males.

Cladius difformis, Pz.

C. rufipes, Lep., = *uncinatus*, Htg.

C. radiatus, Htg., = ? *morio*, Lep.

C. viminalis, Fall., = *grandis*, Lep., = *luteicornis*, Ste., = *cucerus*, Htg.

C. padi, Linn., = *albipes*, Fall., Htg., = *pallipes*, Lep., = *pili-cornis*, Curt., = *immunis*, Ste.—This is the commonest species of the genus, and it is subject to considerable variation in the coloration of the legs. At the end of last October, I found a batch of the larvæ still feeding on the wild rose. I often get larvæ without the usual black mark on the head.

THE BRITISH SPECIES OF TRICHIOSOMA.

Our *Trichiosomæ* are involved in considerable confusion; and in order, as far as possible, to rectify this, I give here a synonymic

revision of the species. The references to the Stephensian species are worked out from the descriptions, and they will, I think, be found correct, although of course an examination of the types would have been far more satisfactory; but this I have not been able to do. I have fortunately succeeded in rearing all the species, and this has greatly simplified their identification, besides making it more sure. On the other hand, I have not been at all successful in breeding the *Cimbices*, so that a revision of these must stand over until I have collected more material.

Trichiosoma lucorum, Linn., = *Latreillii*, *Scalesi*, and *unidentatum*, Leach, *pusillum* and *biverrucatum*, Ste.

T. betuleti, Kl., = *tibiale*, Ste.; *cratægi*, Zaddach.—Thomson considers *betuleti* to be a variety of *lucorum*; but in this opinion I do not agree with him at present, because the earlier stages of the two are not quite identical. At the same time I am open to be convinced that the differences between them are not sufficiently great to warrant their separation. Prof. Zaddach has renamed the species *cratægi*, as that is a more appropriate name; but as Klug's description is quite recognizable, I do not think that his name (having the priority) should be set aside, merely because the insect does not feed on birch, if that is even always the case.

T. sorbi, Htg., Stett. Zeits., 1840, p. 20; Ratzeburg, Die Forstinsecten, 136; Zaddach, Schrift. d. könig. physik.-ökonom. Gesell. zu Königsberg, 1862, 261, pl. ii, figs. 8—10; Thoms., Hymen. Scand., i, 23, 1.

T. vitellinæ, Linn., = *sylvaticum* and *laterale*, Leach.

Pæcilosoma guttatum, Fall.—Thomson (Hymen. Scand., i, pp. 231—233) has split up the *Tenthredo guttata* of Fallén (*impressa*, Kl.) into four species, which he names *guttata*, *longicornis*, *submutica*, and *excisa*. Of these, I have been able to identify as British, *guttatum*, *submuticum*, and *excisum*; but I am not at all sure if the two last mentioned and *longicorne* are really good species; they seem to differ but little from each other; and it is very desirable that some information should be obtained regarding their earlier stages, so as to settle the question whether they are distinct species or not. *P. guttatum* is quite different from the other forms, and may be known from them by its half-smoky wings. The only specimen that I have seen of it was taken by Mr. J. E. Fletcher at Worcester. *Selandria Klugi*, Ste., is clearly a *Pæcilosoma*; it perhaps = *submuticum*, Thoms.

Eniscia, Thomson, Opusc. Ent., p. 299 (1870), Hymen. Scand., i, 261, = *Sciapteryx*, Stephens, Ill., vii, 56 (1835).

Phyllotoma tenella, Zaddach, = *Druida parviceps*, Newman (1837), = *Tenthredo nemorata*, Fallén (1808).

Emphytus lepidus, Klug, = *Harpiphorus lepidus*, Hartig (1837), = *Asticta Ianthé*, Newman (1838).

Perineura viridis (Linn.), Thomson, = *Tenthredo picta*, Klug. According to Thomson, *T. viridis*, Klug (*nec* Linn.), = *T. mesomela*, L.

136, West Graham Street, Glasgow :

February, 1875.

Notes on British Hemiptera.—I cannot let Messrs. Douglas and Scott's remarks on my last month's paper pass unnoticed. I see that in four cases they give their decision against mine; because Dr. Fieber has seen and named the specimens from which they have described. Now, although I most fully acknowledge the value of Dr. Fieber's most excellent works, yet there is no reason why he should not at times have made mistakes, and the fact is that he has made many mistakes in the naming of our British *Hemiptera*. *Berytus commutatus*, *Stethotropis incana*, and *Litosoma bicolor* are three owned to by Messrs. Douglas and Scott in your January number, the two latter of which I suggested to them myself, and they have previously corrected several others. I do not put these forward for the sake of showing the imperfections of Dr. Fieber's work, but to prove that it is unreasonable to hold up his opinion as decisive, as though he could not err. Of course I may be wrong in my views, but if so, I think that Messrs. Douglas and Scott should show me how I am wrong, and therefore I cannot allow myself to be silenced by a simple appeal to Dr. Fieber's authority. I append a few notes to some of the species.

Berytus Signoreti.—I have looked at Lethierry's description of *pygmæus*, and think mine may not impossibly be the same. I hope Messrs. Douglas and Scott's will prove to be the true *Signoreti*, Fieb.

Campylosteira verna, Fall.—I cannot see in either Herrich-Schäffer's or Fieber's descriptions or figures any mention of a second row of meshes either on the pronotum or on the margin. I suppose, as Mr. Douglas says "ours is the true *verna*, Fall.," that he has seen the original type, and if so, I have no more to say.

Phytocoris marmoratus, D. & S.—Will Mr. Scott say how this species differs from *tiliæ*? At the end of his description (Ent. Mo. Mag., v, p. 263) he only says that "its general darker appearance may serve to distinguish it from that insect." If there are any better characters than this, I hope he will point them out.

(*Tinicephalus*) *obsoletus*, D. & S.—When an author makes and characterizes a division, and puts an insect into it which does not agree with the characters of such division, I do not think it is going too far to say that he has made a mistake, and I am only sorry that Mr. Scott should wish to abide by such an error.

Psallus dilutus, D. & S., *nec* Fieb.—The printer may have erred in changing the one into two and the half into one-third, but if so, and Messrs. Douglas and Scott's

insects are the true *dilutus*, Fieb., then I consider *dilutus* and *alni* as identical, and if they are not, I should much like to hear from Mr. Scott how they differ.—EDWARD SAUNDERS, 2, Spencer Park, Wandsworth: 10th March, 1875.

Occurrence of Botys nubilalis (lupulinalis) in London.—Going home late one night last July, down one of the broad thoroughfares south of London Bridge, I caught sight of a moth—evidently a *Pyralis*—sitting on a window, attracted by a brilliant gas-jet inside. Of course my instant thought was "*forficalis*," but it did not look like that species, so was quickly consigned to a pill box. At home, what was my surprise to find that my capture was a total stranger, altogether unlike any species previously known to me; and it turned out equally puzzling to the best authorities. So I sent it to Professor Zeller, who pronounced it to be *Botys nubilalis*, Hübner, ♂; but also *B. lupulinalis*, Gn., D. L. The usual form of *B. lupulinalis*, however, as described by Mr. Stainton in the Manual, and exhibited in a ♀ specimen from Germany, and two males from the Isle of Wight, in Mr. Doubleday's collection, is very different from my specimen, which is of a pale *fuscous* (the colour of *Botys fuscalis* in fact), with a yellow spot between the stigmata; and also the first and second transverse lines, and a conspicuous streak along the fold, uniting them, pale yellow. It appears that this form of the ♂ is not unusual on the Continent, and, indeed, Hübner's figure is much *darker* than my specimen. The ordinary form (not *ordinary* perhaps in this country, as it is excessively rare) is pale straw-coloured, with fuscous lines and stigmata.

The larva of this species is said, by Treitschke, to feed within the stems of hop, and Prof. Zeller tells me that he has taken it among that plant, while Guenée's name has obviously the same derivation; but Freyer gives an extract of a paper by Herr Schmidt, of Laibach, stating that the larva feeds within the stems of a grass (*Panicum miliaceum*), destroying the plants so that they break off, and wintering in the stems (stubbles). Zeller adds that he has found the larva in this plant in millet fields, and that it is easily discovered by the withered appearance of the panicle, and a blackened hole in the stem. It has also been said to feed in the stems of *Marrubium vulgare*, and appears, therefore, to have a wide range of food-plants, but which of them is accountable for the appearance of this specimen in the heart of South London it is difficult to conjecture. Hop warehouses are not scarce in the neighbourhood, but to any one who knows how tightly hops are packed, it would seem very improbable that they should be made the means of conveying an insect which feeds in the stems of the plant.—CHAS. G. BARRETT, Pembroke: March, 1875.

Description of the larva, &c., of Heliothis dipsacea.—Greatly indebted for the help received from several good Entomologists, I here return my thanks to them for all the opportunities they have so kindly afforded me for studying the larvæ of this species, and, indeed, without repeated help, I should have chronicled nothing but failure; what with cannibalism amongst the larvæ themselves, ichneumons, and drying up of pupæ, out of eleven examples received at various times, I have reared but one moth, although I believe I have still some pupæ of 1873 alive.

My first acquaintance with the larvæ was in August, 1867, when one was found in Gloucestershire, feeding on a blossom of purple clover, and sent me by the Rev.

E. Hallett Todd; I then guessed it to be a *Heliothis* by its spiracles and texture of skin, but, as it eventually died, its portrait remained among the unknowns, for future identification.

On 25th of August, 1870, Mr. Harwood sent me a similar larva, found in Norfolk, eating the seed capsules of *Silene otites*; and on September 14th, another arrived from Lord Walsingham, with a notification from him that he believed it to be *dipsacea*; this last was fed on sorrel for a few days, but did not thrive, until some green seed-pods of toad-flax were substituted, when a surprising improvement appeared in its condition, and it soon grew to maturity;—but both this and the other example died after spinning up for pupation.

In August, 1873, my hopes were raised high by the acquisition of several larvæ, found, and sent me from Essex, by Mr. Harwood; most of them he had taken on *Ononis arvensis*, and they were nearly full-fed, and soon retired into the sandy soil provided for them; and there some of them still remain. The last example I received, the one which has—by appearing in the perfect state—enabled me to identify all my previous figures, was found on *Crepis virens* in Norfolk, and forwarded to me September 10th, 1873, by Mr. W. H. Cole; from this the moth appeared on the 10th of July, 1874.

From observing the habits of all these examples, I conclude that the natural food of the larva, from near half-growth onwards to maturity, is confined chiefly to flowers and unripe seeds of various species of *Silene*, *Ononis*, *Trifolium*, *Crepis*, *Hieracium*, *Linaria*, &c.

The full-grown larva when at rest is about $1\frac{1}{2}$ inch in length, and $1\frac{1}{4}$ when stretched out, of moderate stoutness, the body, thickest at the middle segments, tapers very little towards the head, and rather more towards the anal extremity, with a sudden slope down on the back from the middle of the twelfth segment, the thirteenth being rather elongated, and the anal legs extended behind it, the other segments plump and well defined; the head, which has rounded lobes, can be partly withdrawn into the second segment; the tubercular dots small, each bearing a fine hair, and the skin is partially roughened, as hereafter described.

The ground colour is varied, straw colour, light drab, greenish-ochreous, full green, brilliant yellowish-green, rather glaucous-green, olive-green, rose-pink, and deep purplish-brown have all occurred; but in each individual the design has been the same in details as follows:—The head often green, but sometimes pinkish, is freckled with black or brown on the crown of each lobe; the dorsal line is the finest thread of ground colour, enclosed by a pair of much darker lines, which commence on the third segment, and thicken gradually as they approach the middle of the body, from whence they by degrees narrow again towards the end of it; on either side of the back run two pairs of longitudinal, rather meandering, lines, a little darker than the ground colour; the subdorsal stripe of uniform width is either white throughout, or white on the second segment and afterwards pale yellow, or becoming faintly tinged with ground colour, or else greenish throughout; when viewed sideways, it is seen to rise upwards a little in its course along the twelfth segment, and to form an angle by its sudden return to its former direction on the side of the anal flap, where it ends in a point; immediately beneath this conspicuous stripe is a broad longitudinal band of ground colour greatly filled up with darker colour than

that of the back, its upper edge the darkest ; next below comes the spiracular line, either whitish, greenish, or pale yellow, and on it the *circular* white or pale ground-coloured spiracles, outlined with black, are placed ; then comes a stripe of ground colour, or else ochreous or green, followed by a line of white, which runs down the front of the anal leg ; the belly is of the ground colour, with a darker rather interrupted band above the legs, which are of the ground colour, or else greenish. The texture of the skin in the darker lines and parts is rough, being composed of extremely short and minute bristly blackish points ; while in the intervals, and on all the pale stripes, it is smooth.

The pupa is five-eighths of an inch in length, of moderate bulk, the head and palpi rather sharply produced, back of thorax swollen, wing-covers broad at the ends ; abdomen tapering, and ending in two longish anal points, the abdominal rings roughened on the middle : the colour a pinkish red-brown ; but I see the pupæ that are standing over to the second year have become dark brown. The cocoon, composed of silk of the weakest texture, is very flaccid, but no doubt protects the pupa in the sandy soil.—WILLIAM BUCKLER, Emsworth : *March 12th*, 1875.

Captures of Noctuidæ at St. Catharines in the Province of Ontario, Canada West.—In the spring of this year I commenced collecting the *Noctuæ* of this part of Canada, and in the hope that a list of my captures, and the dates of appearance, may be of interest to English Entomologists, I venture to send the same for publication.

Being a stranger to the insect fauna of North America, and in the absence of anything like a Manual of this *Heterocera*, I should, even with the assistance of the British Museum Catalogues and Guenée's work, have had great difficulty in identifying my specimens. Fortunately for me, this difficulty was removed by Mr. Grote of Buffalo, who in the kindest manner has, from time to time, named my material. For this courteous assistance I am under lasting obligations. I have thought it advisable not in all cases to adopt the genera of Mr. Grote's "List of North American Noctuidæ," for in the unsettled state of nomenclature at present existing, I prefer the arrangement of M. Guenée.

This I moreover do for reasons not necessary here to mention. It will be observed that there are in my list several species, and even some genera, hitherto new to science. These have been published by Mr. Grote in various journals.

Many of the *Homopteridæ* I have omitted altogether, as it seems hopeless to indentify them by the meagre descriptions existing. Finally, Mr. Grote has still several specimens yet undetermined ; these will have to be added to the list. The country in this immediate neighbourhood is not favourable for collecting, being so sparsely wooded. In the *Rhopalocera* it seems to me to be very poor in species. *Papilio Turnus* is rare, the larvæ I found on *Laurus sassafras*. *P. Asterias* very common, the larvæ on carrots, parsnips, and other umbelliferæ. *Danais Archippus* very common, the larvæ on milk-weed (*Asclepias*) by the way, one of the best plants I know of as an attraction for *Noctuæ*. *Vanessa Antiopa* very common, and I think larger than in Europe. *Colias Philodice* very abundant all the season, while our adventurous Britisher, *Pieris rapa*, is now by far the commonest butterfly here, the larvæ making a clean sweep of everything eatable in the way of coleworts. The large

Saturnidæ are not uncommon. The cocoons of *P. Cecropia* and *Polyphemus* common on the twigs of *Acer dasycarpum* and other shade trees, while *Promethea* and *Attacus Luna* are not uncommon.

Many hawk moths abound; for instance, *Sphinx quinquemaculata* is very common, the larvæ eating the tomato, and hence called "tomato bugs," for everything alive in this country is called a bug. *Deilephila Chamænerii* and *lineata* are very common over flowers.

Thyatira cymatophoroides, 14th July, sugar, not common; *expultrix*, 23rd June to July, not common at sugar.

Raphia frater, 25th June, rare at sugar.

Acronycta occidentalis, 2nd June, common at sugar and rest until August; *morula*, 10th July, rare at rest; *connecta*, 12th August, rare at sugar; *hastulifera*, 26th June, not common at rest; *dactylina*, 24th July, rare at sugar; *brumosa*, 17th May, July, and August, not uncommon at rest and sugar; *Ferrilli*, 20th July, rare at sugar; *noctivaga*, 6th June to August, rare at light and sugar; *superans*, 25th June, July, not unfrequent at sugar; *ovata*, 18th June, bred, rare at sugar; *subochrea*, n. s., 2nd July, rare at sugar; *dissecta*, 17th June, two specimens at rest; *oblinita*, 26th May, at rest, very frequent, a second brood in August, cocoons very common on palings.

Bryophila lepidula, 16th July, rare at sugar; *palliatricula*, 29th June, frequent at rest and sugar.

Noctua sigmoides, 29th June to August, not unfrequent at sugar; *augur*, 3rd July, common at sugar; *baja*, 3rd August to September, very common at sugar; *C-nigrum*, 11th June to September, very common at sugar and light, specimens larger than in Europe; *bicarnea*, 31st July to September, very frequent at sugar and at lime blooms; *Normaniana*, n. s., 31st July to September, frequent at sugar. This has hitherto, I believe, been considered the same as *N. triangulum*: I am reminded much more of *N. depuncta*, which seems its nearest ally; *clandestina*, 19th June to July, common at sugar and lime blooms; *brunneicollis*, 2nd July to September, rare at sugar; *alternata*, 1st July to September, very common at sugar; *cupida*, 17th July, August, frequent at sugar; *rubi*? 4th August, rare at sugar.

Agrotis herilis, 31st July to September, very common at rest, sugar, and light; *tricosa*, 3rd August to September, very common at rest, light, and sugar; *subgothica*, 9th August to September, not so frequent as the preceding two species at rest, sugar, and light. All three species very abundant on flowers of thistle *Cnicus arvensis*, and unopened flowers of *Verbascum thapsus*; *Fennica*, 10th August, one specimen at rest. This seems to be quite as rare on this continent as in Europe, only two or three specimens, I believe, are known in the Cabinets here, and these from Labrador and California; *tesselata*, 29th June, bred from larvæ found in abundance at roots of *Malva rotundifolia*, &c., in May, afterwards, to end of July, swarming at sugar, rest, and lime blooms. Many remarkable and beautiful varieties just as in our *tritici*; *Cochrani*, 27th July, bred, afterwards, to September, common at sugar and rest; *saucia*, 14th August, not uncommon at sugar; *suffusa*, 2nd June to October, swarming at sugar, flowers, and light. Larger and more strongly marked than in Europe; *venerabilis*, 6th September, not unfrequent at light, sugar and in breeding case.

Aplecta pressa, n. s., 6th July, lime blooms and rest, several; *herbida*, 27th June to September, common at rest, less frequent at sugar; *nimbosa*, 6th August, rare at sugar; *latex*, 30th May to June, not uncommon at rest.

Ammoconia badicollis, 31st July, rare at sugar.

Hadena subjuncta, 2nd July, rare at rest; *vicina*, n. s., 4th June, rare at sugar; *confusa*, 8th May, rare at palms; *albifusa*, 5th June to August, common at rest, flowers, and sugar; *claviplena*, 9th July, rare at sugar; *xylinoides*, 23rd May to June, common at rest and sugar. A second brood in August smaller in size.

Dianthæcia meditata, 11th August, not rare at sugar and rest.

Mamestra arctica, 22nd June to August, swarming at sugar, rest, and lime blooms, also bred from warty and maggoty-looking larvæ found under grass and logs in May; *devastator*, 24th June to September, by far the most common moth here, a perfect nuisance at sugar.

Apamea jaspis, 30th May to July, common at rest and sugar; *finitima*, 10th June, common at rest, more rarely at sugar. This species, though near our *basilinea*, is a much more beautiful insect; *mactata*, 31st August and September, common at rest and sugar; *modica*, 7th July to September, very common at sugar and rest; *reniformis*, 31st July to September, not uncommon at sugar. Represents, and is very near, *A. fibrosa*.

Celæna herbimacula, 23rd June to October, very common at sugar, light, and rest. Seemingly a succession of broods; *chalcedonia*, 25th June, rare at sugar.

Dipterygia pinastri, 14th June, not uncommon at sugar and rest.

Xylophasia apameiformis, 16th June, frequent at sugar and rest; *sputator*, 4th July to September, common at sugar, also bred; *dubitans*, 12th July, rare. One specimen in spider's web; *lignicolor*, 27th June to August, common at sugar and lime blooms; *verbascoides*, 9th July, rare, one specimen at sugar; *sectilis*, 15th June to August, not uncommon at sugar and rest; *cariosa*, 6th July, rare, one specimen at rest.

Cloantha ramosula, 18th May, rest (hibernated). 1st September, fresh specimen at rest, rare; *vomerina*, 8th May, rare at willow palms, *Salix caprea*.

Phlogophora periculosa, 6th August, rare at sugar; *Iris*, 9th June, rare at sugar.

Euplexia lucipara, 2nd June to August, not common at rest and sugar.

Nephelodes violans, 1st September, common at light and sugar, but always in bad condition.

Luceria loculata, 27th June, not uncommon at sugar.

Hydræcia lorea, 16th June to July, common at light flowers and sugar; *nictitans*, 21st July to August, common at sugar. Not so variable nor so beautiful as in Scotland; *sera*, 2nd July, very common at sugar and light.

Gortyna cataphracta, 22nd September, rare, bred in quantities from larvæ in the stems of *Arctium lappa*.

Scoleocampa ligni, 1st July, rare at light.

Leucania Henrici, 15th April, bred; *pallens*, 3rd July, not common at lime blooms; *phragmitidicola*, 7th June, not uncommon at light and sugar; *commoides*, 3rd July to August, common at lime blooms, sugar, and light; *unipuncta*, 3rd June to September, very common at sugar; *pseudargyria*, 11th July, rare at sugar.

Ufeus satyricus, 20th July, rare at sugar.

Caradrina miranda, 2nd June, not uncommon at light.

Amphipyra pyramidoides, 24th July to August, common at sugar; *tragopogonis*, 13th July, not uncommon at sugar.

Ceramica picta, 7th June, bred, larvæ afterwards on cabbage.

Matula Catharina, n. g. et sp., 29th December, 1873, wings in spider's web; 11th May, at sallow palms, rare.

Perigrapha Normani, n. s., 11th May, rare at sallow palms, June, one at sugar.

Tæniosea gentilis, n. g. and sp., 30th June, very common at lime blooms, sugar, and at rest, until August; *perbellis*, n. s., 2nd July, rare at rest.

Tæniocampa alia, 2nd May to June, very common at palms; *oviduca*, 30th May, not unfrequent at light.

Orthodes infirma, 29th June, not unfrequent at sugar and light; *cynica*, 8th June, rare at sugar.

Cirrædia pampina, September 1st, common at sugar all the month.

Cerastis decliva, 21st September to October, common at sugar; *inulta*, 18th September, rare at sugar.

Orthosia infumata, n. s., 18th August, not uncommon at rest and sugar.

Xanthia ferrugineoides, 15th September to October, very common at sugar and with net; *euroa*, 9th September, not rare at rest.

Scopelosoma Morrisoni, 4th May, not uncommon at palms (hibernated). Fresh specimen, 18th October, at rest under a board; *devia*, n. s., 10th May, rare at palms.

Gonoptera libatrix, 4th May (hibernated), at rest. Fresh brood June to October, not unfrequent at sugar.

Xylina petulca, 5th May (hibernated), at palms. Fresh specimens, 11th September, common at rest and sugar; *ferrealis*, 5th May (hibernated), at palms. Fresh specimens, 19th September, rare at rest; *Bethunei*, 2nd May (hibernated) at palms. Fresh brood, 7th September to October, very common at rest and sugar; *disposita*, 5th May (hibernated), at palms. Fresh brood, September to October, not uncommon at sugar and rest; *cinerea*, 16th September, not rare at rest and sugar; *laticinerea*, 2nd May (hibernated), very common at palms and sugar. Fresh brood seems later than the last, viz.: 8th October, very frequent at sugar and rest. I never took *cinerea* in the spring; *tepida*, 8th October, rare at rest; *pexata*, 3rd May (hibernated), at palms. Fresh brood, 16th September to October, frequent at rest and sugar.

Calocampa nupera, 10th May (hibernated), single specimen at light.

Cucullia asterioides, 3rd June, common at flowers and rest.

Crambodes talidiformis, 13th June, rare with net at raspberry flowers.

Adisophanes miscellus, 2nd May, rare at rest.

Plusiodonta compressipalpis, 24th June, rare with net over *Philadelphus coronarius*.

Placodes cinereola, 19th June, not uncommon at light.

Abrostola ovalis, 16th August, rare at light. Many larvæ of some *Abrostola* afterwards at nettles.

Plusia area, 20th June, rare at light; *balluca*, June, rare at light; *precatonis*, 3rd June to October, very common at flowers and rest; *simplex*, 1st June, rare with net over thistles (*Cnicus arvensis*); *mortuorum*, 2nd August, rather scarce at rest and over thistle flowers; *8-scripta*, 1st September, rare at rest; *ampla*, 21st July, rare with net over thistles.

Heliothis exprimens, 5th June, rather frequent over lilac and *Weigelia rosea*.

Acontia candefacta, 6th September, rare at light.

Oligia versicolor, n. g. and sp., 23rd June, rare at rest.

Leptosia concinnimacula, 1st June, common at rest and sugar.

Erastria carneola, 1st June to September, very common at rest and sugar; *synochitis*, 25th June, rare at rest; *nigritula*, 15th June, common at rest to July; *muscosa*, 9th June, very common at rest and sugar.

Chamyris cerintha, 29th June, rare. One pair at rest.

Drasteria erichtea, 10th May to August, common at light and sugar; *erichto*, June 12th, common at rest, sugar, and light.

Parallelia bistriaria, June 8th, common at rest and sugar.

Parthenos nubilis, 3rd June to September, very common at rest and sugar.

Catocala Epione, 27th July, rare at sugar; *insolabilis*, 29th June, rare at rest; *residua*, 1st August, not common at sugar; *relicta*, 4th August to September, common at sugar and rest; *unijuga*, 18th August, not rare at sugar; *Briseis*, 5th August to September, not uncommon at sugar and rest; *parta*, 20th July to September, common at rest and sugar; *ultronia*, 11th July to August, very common at rest and sugar; *concumbens*, 4th August to September, very common at rest and sugar; *amatrix*, 27th August to September, common at rest and sugar; *cara*, 20th August to September, less common than the last at rest and sugar; *innubens*, 2nd August, very common at rest and sugar; *innubens*, var. *scintillans*, 8th September, rare at sugar; *cerogama*, 31st July to September, very common at rest and sugar; *neogama*, 24th July to August, common at sugar and rest; *piatrix*, 17th August, not rare at sugar; *habilis*, 20th August, not uncommon at sugar; *calebs*, n. s., 18th August, rare. One specimen at sugar, Strathsallow; *Clintoni*, 11th July, rare. One specimen at sugar; *polygama*, 8th July to August, very common at sugar and rest.

Homoptera lunata, 2nd May to June, common at rest and sugar; *Saundersii*, 17th June, common at rest and sugar; *edusa*, 11th August to September, not uncommon at sugar and rest.

Ypsia undularis, 23rd May to June, common at sugar and rest. Apparently a second brood in August.

Pseudaglossa lubricalis, 10th July, common at sugar and lime blooms.

Epizeuxis americalis, 9th July, common at sugar.

Chytolita morbidalis, 23rd June, common at sugar.

Palthis angulalis, 24th June, rare at sugar.

Bomolocha baltimoralis, 21st June, very common at rest and sugar; *abalienalis*, 14th June, common at rest and sugar.

Hypena subrufalis, 29th June, not common at rest.

Platyhyphen scabra, 23rd July to November, common at rest and sugar.—GEO. NORMAN, St. Catharines, Ontario: 1st November, 1874.

Obituary.

Dr. John Edward Gray, F.R.S., &c. Dr. Gray died at the British Museum on the 7th March, at the age of 75, he having been born at Walsall, in Staffordshire, in the year 1800. Although his entomological publications have been few, it would be scarcely right that we should content ourselves with a simple notice of his death. He was originally intended (we believe) for the medical profession, but, so far as we

are aware, never completed his medical studies, his taste taking a special turn towards the pursuit of Natural History; and, as Prof. Westwood (five years his junior) remarked at the last meeting of the Entomological Society, he was, when a very young man, a fellow pupil (if it may be so called) with Westwood, of Haworth, and helped him to arrange his collection of insects and entomological books. In 1824 he was appointed an assistant in the Zoological Department of the British Museum, of which, in 1840, he became Keeper,—a position which he resigned in December last, having completed fifty years of service. There are probably few men who possess so varied a knowledge of Natural History as Dr. Gray did. It may safely be asserted that he has published works and papers on every branch (including Botany), and there is no Society in London devoted to the Natural Sciences in which he has not, at some time or other, held a prominent position. It would be probably within the mark if we were to estimate the number of his published papers at 700 or 800; and, although during the past few years he was more or less crippled from recurrent paralytic attacks, his intellect and love of controversy remained as keen as ever. That he did much towards rendering our National Collection the richest in material in the world is undoubted, not unfrequently disbursing from his own pocket, in the first instance, amounts necessary to secure particular specimens or collections desirable for the Museum, trusting to be re-imbursed when there should be sufficient funds in hand from the annual grant to his department. Perhaps to his peculiar temperament it was due that even towards those who would be the first to acknowledge his great attainments and services to Natural Science, there was sometimes an appearance of a lack of courtesy, and of a desire to rush into violent controversy. To this also we, as entomologists, think is to be attributed the fact, that in spite of remonstrances of the strongest nature, both at home and abroad, he continued to allow (we might almost say command) the issue of such Catalogues as those referred to in a recent obituary notice in this Magazine. We gladly, however, remember that in addition to his numerous and versatile memoirs on Natural History, Dr. Gray has done good and lasting service in the department of periodical literature, more especially as one of the editors of the 'Annals and Magazine,' in the affairs of which he for a long time took an active part, and in which he published some of his most valuable papers. His position as Keeper of the Zoological Collection has been filled (as most of our readers probably already know and appreciate) by the elevation of Dr. Günther, who in his turn is replaced as Assistant-Keeper by Mr. Frederick Smith.

BRITISH HEMIPTERA.—ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS.

RHYPAROCHROMIDÆ.

SCOLOPOSTETHUS AFFINIS.

Pachymerus affinis, Schill., Beitr., 80, 23 (1829).

„ *decoratus*, a, Hahn, Wanz., i, 139, t. 22, f. 71 (1831).

Scolopostethus affinis, p. Fieb., Eur. Hem., 189, 6 (1861); p. D. and S., Brit. Hem., 185, 3 (1865); Leth., Cat., 25 (1869), id., 2 edit., 20 (1874); var. *b*, p. Stål, Oefv. Vet. Ak. Förh., 220, 1 (1862).

Lygæus affinis, Thoms., Opusc. Ent., ii, 201, 52 (1870).

Antennæ thick: 1st joint pale orange, very rarely dusky on the upper surface (♂), or with a large black spot or wholly black, on the upper side (♀); 2nd pale orange, distinctly black at the apex; 3rd and 4th joints black. *Elytra*: *corium* with sub-erect, pale golden hairs. *Legs—thighs*: 1st pair black, yellow at base and apex; 2nd and 3rd pairs pale orange, the 2nd sometimes with a blackish spot, and the 3rd with a large brown or black spot or ring, before the apex.

Usually brachypterous. Generally, but locally, distributed.

SCOLOPOSTETHUS ERICETORUM.

Scolopostethus ericetorum, Leth., Cat., 25 (1869), *id.*, 2 edit., 20 (1874).

„ *affinis*, p. Fieb., *l. c.*; D. and S., *l. c.*; var. *a*, Stål, Oefv. Vet. Ak. Förh., 219, 1 (1862).

Lygæus melanocerus, Thoms., Opusc. Ent., ii, 202, 56 (1870).

Antennæ not thick, black, except the basal third of the 2nd joint, which is pale ferruginous. *Elytra—corium* smooth, without hairs. *Legs—thighs*: 1st pair brown or black, apex yellow; 2nd and 3rd yellow, with a black ante-apical ring, generally narrower on the 2nd pair.

Found only under heather.

The foregoing two species have been usually mixed together, but I think M. Lethierry has shewn good cause for their separation, of which the chief distinguishing characters are given above.

SCOLOPOSTETHUS ADJUNCTUS.

Scolopostethus adjunctus, D. and S., Brit. Hem., i, 183, 2 (1865).

Pachymerus decoratus, Abänd., b. and c., Hahn, Wanz., i, 139 (1831).

„ *podagricus*, p. Flor, Rhyn. Liv., i, 279 (1860).

Scolopostethus affinis, var. *b*. p., Stål, Oefv. Vet. Ak. Förh., 220, 1 (1862).

Lygæus podagricus, Thoms., Opusc. Ent., ii, 201, 55 (1870).

Scolopostethus podagricus, Leth., Cat., 2 edit., 20 (1874).

Lygæus decoratus, Thoms., *l. c.*

Scolopostethus decoratus, Leth., *l. c.*

Lygæus podagricus, Fab., according to the description, might possibly be a *Scolopostethus*, but, if so understood, no mention whatever being made of the antennæ, which in this genus afford good differential characters, the description may apply to several of the species. In this sense Flor uses the name, for he avowedly associates under it, as one species, *Pachymerus pictus* and *affinis*, Schill., and *P. decoratus*, Hahn, with its so-called varieties. Fallén cites the Fabrician name doubtfully, and his description, on the whole, agrees best with *P. pictus*, Schill. Fieber does not advert to *podagricus*, Fab., but quotes

the name as of Fallén, and puts it as a synonym of *P. pictus*, Schill. Thomson also passes over the Fabrician description altogether, and, citing Fallén as the author of the name *podagricus*, applies it to the form of *Scolopostethus* which has the first two joints of the antennæ entirely yellow, the mesosternum bi-tuberculated, and the membrane of the elytra wanting; while he refers to *decoratus*, Hahn, the macrop-terous examples of the same form, having the same kind of antennæ, but in which the tubercles of the mesosternum have disappeared by reason of the correlative development of the elytra. If these were really two species, the names would be untenable, but both forms were first (and rightly) comprehended as one species under the name *S. adjunctus*, D. and S. Stål, in his "Hemiptera Fabriciana," ii, 122, 142 (1869), refers *Lygæus podagricus*, Fab., to the genus *Eremocoris*, Fieb.

Finally, to clear up this *imbroglio*, seeing that Fabricius wrote "Habitat in Anglia. Mus. Dom. Banks," I determined to refer to the Banksian collection still preserved in the British Museum, and the examination of the unique typical example has proved not only that Stål was correct in his reference to the genus *Eremocoris*, but that the long lost *podagricus* is identical with *Lygæus erraticus*, Fab.! The former name is the older, and the description of *podagricus* in some respects suits *erraticus* better (*e. g.*, "Femora antica crassissima, bidentata," for the description of *erraticus* has "femoribus anticis unidentatis," which is incorrect); but the identity of *Eremocoris erraticus* with the Fabrician species not having been questioned, the synonymy, as far as Fabricius is concerned, will be as follows:—

EREMOCORIS PODAGRICUS.

Cimex podagricus, Fab., Mantissa, ii, 302, 238 (1787); *Lygæus podagricus*, Fab., E. S., iv, 167, 111 (1794); S. R., 232, 142 (1803).
Lygæus erraticus, Fab., E. S., iv, 167, 109 (1794); S. R., 232, 139 (1803).

NOTOCHILUS, Fieb.

Wien. Ent. Monats., viii, 68 (1864).

NOTOCHILUS LIMBATUS.

Notochilus limbatus, Fieb., Verh. zool.-botan. Gesells. Wien, xx, 257, 1 (1870).

Scolopostethus crassicornis, D. and S., E. M. M., viii, 24 (1871).

As indicated, *l. c.*, the British example from which the description was made, then and still unique, has some points of divergence from the genus *Scolopostethus*, although it was not then referred to *Notochilus*, Fieb., to which it really belongs; but five species being now

described, the validity of the genus must be admitted. M. Lethierry, of Lille, has had the goodness to send me an example of *N. limbatus*, which agrees exactly with Fieber's description. Our insect is identical, except that in it the second joint of the antennæ is black, and rusty-yellow only at the extreme base; whereas, in his, the lower half of the second joint is rusty-yellow; but, although this coloration appears to be a constant character in French examples, yet, as ours differs only in this respect, I am obliged to consider it as only a variety of *N. limbatus*.

M. Lethierry says (Cat., p. 20) that he finds the species in April, sometimes rather commonly, but only in one locality in a wood, near a sand-pit, by sifting moss, under which are several nests of three species of ants, *Ponera contracta*, *Myrmecina Latreillei*, and *Formica rufa*; he also once obtained several examples in the interior of the nests of the last.

RHYPAROCHROMUS, Curt., D. and S.

(*Megalonotus*, Fieb.)

RHYPAROCHROMUS SABULICOLA.

Lygæus sabulicola, Thoms., Opusc. Ent., ii, 190, 23 (1870).

Megalonotus sabulicola, Leth., Cat., 2nd edit., 15 (1874).

Black, clothed with golden pubescence.

Head in front and before the eyes with long projecting hairs. *Antennæ* short, black, 1st joint at the apex, 2nd and 3rd except the apex, rufous. *Pronotum* slightly, but posteriorly coarsely, punctured, the sides with long projecting hairs. *Elytra*—*corium* light brown, posteriorly with a black blotch, in which are two pale spots, the disc clothed with short, sub-depressed, black hairs, and having black punctures in distant rows; *membrane* pale fuscous, a distinct yellowish spot at the inner basal angle, and a small one at the outer angle; nerves broadly whitish in the middle; or the *membrane* is abbreviated, fuscous, with a pale spot under the apex of the *corium* and indications of pale nerves. *Legs*—*thighs* black, the extreme apex of all, the basal third of the 2nd and 3rd pairs, the *fulera*, all the *tibiæ* wholly (except sometimes the 1st pair at the extreme apex), the 1st and 2nd joints of the *tarsi*, and the *claws*, rufous.

Under-side clothed with delicate, silvery pubescence.

Length, $1\frac{3}{4}$ –2 lines.

This species, as M. Lethierry says (*l. c.*), has doubtless been confounded with *R. chiragra*, Fab. It is distinguished from the latter by its much smaller size, by the shortness, positive and relative, of the antennæ, by the redness of the 3rd as well as of the 2nd joint thereof, by the slighter puncturing of the posterior portion of the pronotum, by the base of the 2nd and 3rd pairs of thighs being broadly red, and by the redness throughout of all the tibiæ.

I have two specimens taken on the sand-hills at Deal, one in May, the other in September, 1872.

RHYPAROCHROMUS CHIRAGRA, Fab.

Var. n. *nigricornis*.

Under this name I wish to record a form, of which I have two examples, which differs from the typical *R. chiragra* chiefly by the antennæ being wholly black. This peculiarity has never been recorded, so far as I am aware, and the capture of more examples, or the re-examination of those in collections, may possibly result in establishing this form as a species.

PERITRECHUS NUBILUS.

Lygæus nubilus, Fall., Hem. Suec., 54, 10 (1829); Thoms., Opusc. Ent., ii, 193, 30 (1870).

Pachymerus nubilus, Flor, Rhyn. Liv., i, 246, 9 (1860) ?.

Differs from *P. puncticeps* (infra) in being distinctly broader throughout and (in my example) of a lighter colour. The head is less perceptibly punctured; the eyes are less prominent; the antennæ are thinner and slightly shorter; the pronotum is proportionally broader in front, rather shorter, the sides straighter, and the posterior light coloured portion of the disc more distinctly defined; the membrane of the elytra paler.

I have a single example, taken many years ago and of which the locality is not noted, which is very like, but differs as above stated from, *P. nubilus*, Fieb.; this I have recently sent to Dr. J. Sahlberg and M. Lethierry, and they both agree with me that it is *Lygæus nubilus*, Thoms., nec Fieb. It certainly agrees better than Fieber's species with *L. nubilus*, Fall., and as Thomson has been the first to separate the two it may be best to believe that he is right in his definition of Fallén's species.

M. Lethierry says that this species is common in the spring, under moss, at Lille. It is probably to be found in our southern counties, or has probably already been mistaken for the following.

PERITRECHUS PUNCTICEPS.

Lygæus puncticeps, Thoms., Opusc. Ent., ii, 193, 31 (1870).

Beosus nubilus, F. Sahlb., Geoc. Fenn., 65, 29 (1848); *Peritrechus nubilus*, Fieb., Eur. Hem., 184, 2 (1861), D. and S., Brit. Hem., i, 189, 2 (1865); nec Fall.

Peritrechus puncticeps, Leth., Cat., 16 (1874).

Herr Thomson distinguishes this species from the foregoing, thus: "Very like *P. nubilus* in colour and size, but the antennæ are rather stouter, the eyes more exerted, the thorax rather longer, and the front sparingly but more strongly punctured."

The puncturing of the head is very noticeable.

This is the common British species.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

[*Description of a new species of the genus* ATHYSANUS.]

ATHYSANUS VERRALLI, n. sp.

♂. Brownish-yellow, shining. *Crown* with a black transverse streak on the anterior margin extending from eye to eye. *Face* black, towards the apex dusky-brown, with 6-7 fine yellow transverse lines, the upper three joined at the base. *Elytra*: nerves pale, finely margined with dark brown on both sides; apical areas fuscous-black. *Legs* sordid yellow; *thighs*: 1st and 2nd pairs with two narrow black rings at the apex. *Abdomen* beneath black.

♀. *Face* dusky-brown with the transverse streaks somewhat as in the other sex. *Elytra*: apical areas ocellate, or sometimes faintly margined with brown. *Abdomen* beneath yellowish, with a large, somewhat trapeziform, black patch down the centre of each segment; lateral valves next the ovipositor brownish, finely spotted with yellow. The other characters generally as in the male.

Length, ♂, $2\frac{1}{4}$, ♀, $2\frac{1}{2}$ lines.

Head—*crown* brownish-yellow, with a black transverse streak on the anterior margin, slightly widened in the middle, and extending from eye to eye; extreme edge yellow; across the middle a brown streak, in which are two large shallow foveæ; the space enclosed between the transverse streaks paler than the basal portion; *face* black, with 6-7 fine, yellow, transverse lines, the upper three springing from a common base near the antennæ; above the latter and adjoining each eye a small yellow spot; *antennæ* brown, apex of the joints paler; *setæ* black.

Thorax—*pronotum* brownish-yellow, with a slight fuscous shade; next the anterior margin a transverse channel, in which is a very fine short streak about in a line with the inner margin; the space enclosed between the channel and the anterior margin paler than the posterior portion, which is finely wrinkled transversely; *scutellum* pale yellowish, after death slightly whitish-yellow with a more or less distinctly defined darker line down the centre, and a short, brownish, longitudinal streak about midway between the centre and the basal angles. *Elytra* brownish-yellow, shining, nerves paler than the disc, and narrowly margined on each side with dark brown; *clavus*: inner margin between the apex and the central nerve with a narrow dark brown streak; suture very narrowly black; *corium*: ante-apical area adjoining the anterior margin dark brown, sometimes blackish, and frequently with a palish centre; apical areas dark fuscous, sometimes paler in the centre; *wings* dark fuscous, nerves black. *Legs* sordid yellow; *thighs*: 1st and 2nd pairs with two narrow black rings, the inner one sometimes interrupted at the apex; 3rd, at the base, with a black dash down the middle; *tibiæ*: 1st and 2nd pairs with 2-3 small black spots on the outer margin; 3rd, inner margin black, towards the apex broken into elongated spots, outer margin

with elongate black spots, spines sordid yellow or slightly brownish; *tarsi*: 1st and 2nd pairs slightly brownish; apex of the 3rd joint black; 3rd, black; base of the 1st joint brownish or brownish-yellow.

Abdomen above and beneath black; genital segments black; valve and plates very narrowly margined with pale brown or brownish-yellow.

I do not know any other species of this genus with which the insect just described can be confounded. In the markings on the elytra it somewhat resembles *Thamnotettix splendidulus*, but the difference in form of—and characters on the head of—each, will at once distinguish them, exclusive of the larger size of *A. Verralli*.

I have much pleasure in naming the species after my friend Mr. G. H. Verrall, who was with me when it was captured in some numbers, on the margin of Poole Bay, by sweeping amongst rushes, at the end of September. I have also a single ♂ example taken by Mr. E. Saunders, at Littlehampton, in July, 1873.

37, Manor Park, Lee, S.E.:
February, 1875.

ON THE SPECIES OF *EPHESTIA* OCCURRING IN BRITAIN.

BY C. G. BARRETT.

Having lately had rather unusual opportunities of studying the more obscure species of the genus *Ephestia*, native to, or settled in, this country, I am inclined to endeavour to smooth away some of the difficulty which surrounds them.

I may omit *E. interpunctella*, and also *E. pinguis* and *artemi-siella*, which indeed hardly belong to the genus, as they are well known and easily recognizable.

As in many others of the *Phycidæ*, the *structural* characters of the *Ephestiæ* are principally confined to the male sex. These consist of—a lappet or fold of membrane covered with long scales, situated along the under-side of the costa near the base,—one or two tufts or flocks of long hairs at the base of the upper-side of the hind-wings,—and sometimes a peculiar formation of the antennæ beyond the basal joint.

EPHESTIA ELUTELLA, Hübn.—Fore-wings moderately broad, with regularly rounded costa; in the ♂ slightly dilated near the base of the costa,—the large size of the projecting lappet giving the wing a slightly shouldered appearance. Colour pale grey; a straight oblique transverse line at about one-third the length of the wing from the base, inclining outward from the costa, and another, sinuous, line, oblique in the opposite direction, near to, and almost parallel with, the hind margin. Between these on the disc are two

dark grey dots arranged nearly perpendicularly to the margin. Hind-wings whitish edged with grey, in the ♂ with *two* tufts of long yellowish scales at the base. Antennæ simple beyond the thickened basal joint.

This species varies greatly in size and colour. Males of the late autumn brood are very small, and sometimes nearly white. Other specimens are dark grey with the lines barely indicated by their pale edges. Some pale specimens have the lines very dark, especially towards the costa, and occasionally a dark shade runs from the costa near the apex into the middle of the disc. Another form has the dorsal margin broadly ochreous or even reddish, and this in many collections, represents—perhaps correctly—*semirufa*, Haworth. A rather curious dwarf form, beaten out of yew trees in Cumberland by Mr. Hodgkinson, appears to have the first transverse line even further from the base than usual, and has therefore also been mistaken for *semirufa*.

Elutella seems to be generally pretty common, and may be beaten out of thatch, ricks, and even other shelters far removed from houses, but it is most common in London and other large towns, and swarms in grocers' warehouses.

It seems to me exceedingly probable that Haworth's description of *semirufa* (as well as of *rufa* and *angusta*) was made from a variety of this species.

EPIHESTIA SEMIRUFA, Stn. (Haw. ?).—Fore-wings moderately broad, costa less arched than in *elutella*. Lappet in the ♂ hardly projecting, covered with short, hair-like scales. Colour of fore-wings *pale brownish-ochreous*, sometimes tinged with grey. First line brown, very oblique, near the middle of the wing, second line double, brown, sinuous, further from the hind margin than in *elutella*, the enclosed space in the middle of the wing is therefore small, and the two lines approach each other on the dorsal margin. Disc with two faint brown spots. Hind-wings whitish in the ♂, with two basal yellow tufts; pale grey in the ♀.

Apparently a very local species. The only specimens that I have seen were beaten out of ivy some years ago, on the south coast of Devon, by Dr. Jordan.

EPIHESTIA FICELLA, Stn., Dougl.—A large handsome species. Fore-wings very narrow at the base, much arched beyond the middle. Costal lappet small and inconspicuous, not dilated. Fore-wings dull dark grey tinged with brownish (under a lens, cream colour, covered with large, coarse, black scales). First line not oblique, whitish, four times

sharply angulated, externally edged with black, second line whitish very indistinct, strongly angulated below the costa, and giving off pale dashes to the hind margin, along which is a row of black dots. The blackish distal spots but faintly visible. Hind-wings whitish, having in the ♂ one pale ochreous tuft at the base. Antennæ simple.

This species appears to be rather scarce. It was bred some years ago by Messrs. Doubleday, Bond, and Courtney, from larvæ feeding on cork.

EPHESTIA FICULELLA, *sp. n.* Al. exp., 7–8 lines.—Fore-wings very narrow at the base, strongly arched beyond the middle. Costal lappet narrow, with a tuft of *long* hair-like scales laid *lengthwise* beneath the wing. Fore-wings smooth and shining, pale slate colour with a small ill-defined ochreous patch at the base of the dorsal margin. The first transverse line is at one-third the length of the wing from the base, pale grey, externally edged with dark grey *spots*, and nearly perpendicular to the margins. Second line pale grey, often obsolete, oblique, angulated above the middle, slightly edged on both sides with grey dots. Faint dashes of ochreous lie longitudinally between the wing rays. Hind margin faintly dotted with dark grey, cilia pale grey. Hind-wings whitish, edged with brownish, cilia white. ♂ with one ochreous tuft at the base. Antennæ thickened beyond the basal joint, then constricted and slightly bent, and again thickened before assuming the usual simple form.

Head, antennæ, palpi and thorax slate-grey, abdomen brown.

Rather common in London and other large towns in grocers' warehouses, feeding on currants, figs, &c.

This species is placed in many collections under the grotesque (not to say macaronic) names of *figulella*, *figuliella*, and *figulillella*. To prevent confusion as far as possible, I have therefore adopted the nearest feasible approach to these names,—although the insect cannot be said to show any partiality for *little figs* over large ones.

EPHESTIA PASSULELLA, *sp. n.* Al. exp., 6–7 lines.—Fore-wings narrow, especially at the base, costa less arched than in the preceding species. Costal lappet with a broad tuft of scales. Fore-wings pale fuscous with a yellowish tinge, scales large and coarse, and easily rubbed off. First transverse line at one-third the length of the wing, fuscous, ill-defined, straight, and very slightly oblique. Second line parallel with the hind margin, pale, faintly edged with fuscous, often nearly obsolete. Usual two dots on the disc oblique, fuscous, hardly discernible, cilia yellowish-fuscous. Hind-wings white, with scattered fuscous scales, and a faint brown margin, cilia white. ♂ with one ochreous tuft at the base. Head, antennæ, palpi, thorax and abdomen yellowish-fuscous. Antennæ simple beyond the thick basal joint.

Locally common in currant warehouses. An obscure species, probably overlooked. I have named it from its food (*Passulæ corinthiacæ*), dried currants.

During the summer and autumn of 1874, I was closely tied by business to London, especially to the East End, and naturally turned my attention to such species of *Lepidoptera* as might possibly be within reach. Profiting by hints received from Mr. Howard Vaughan, and introductions from other kind friends, I spent such time as I could spare in investigating some of the extensive grocers' fruit warehouses in the city, more especially in the hope of meeting with the rare and little known *Melissoblaptes cephalonica*. On July 31st, I met with two specimens of this species in a warehouse window; but, as no more appeared for a considerable time, it seems possible that these might have been stragglers of an early brood, previously unnoticed. At the same time *Ephestia elutella* was out in swarms.

On August 19th, *E. ficulella* appeared in numbers with a few *interpunctella*, and remained, I believe, on the wing all that month, but circumstances prevented me from looking for them till Sept. 21st, when I found *Melissoblaptes cephalonica* out in some plenty and in very fine condition, nearly all the specimens then being males, the females making their appearance later. This species continued out accompanied by a late brood of *Ephestia elutella* and of *E. interpunctella* till the end of October. In this month also appeared a late brood of *E. ficulella* very sparingly.

I first noticed the more obscure *E. passulella* on October 10th, flying among the swarms of *elutella*, and it continued to appear freely till near the end of October.

For *E. ficella* I did not find a favoured locality till too late for it to be of any use; but, at the end of October, in a warehouse in which rough cork had been stored for a considerable time, I found the remains of many specimens in the spiders' webs. Early in the month casual specimens occurred in the fruit warehouses and in the streets.

This last species seems very sluggish, and I never saw it fly, but *E. elutella* and *E. passulella* are exceedingly active and lively, flying freely in the afternoon as soon as a lamp is brought to bear on their retreats. Indeed, the air often seemed alive with these species and *interpunctella*,—all three having a similar hovering flight. The flight of *M. cephalonica* is quite different when disturbed, as it darts down in a zig-zag, and almost immediately settles again. Towards evening the males run about, quivering their wings in a peculiar manner. This species shows wonderful skill in concealment by selecting the projections and inequalities of rough beams, to

which its appearance, from its rough blunt head and closely folded wings, bears so close a resemblance that I have taken specimens between my fingers before I could satisfy myself that they were not projecting splinters.

It is, of course, superfluous to remark that these species must have been introduced into this country with the dried fruits upon which they feed. More than this, they are still being constantly replenished from abroad, as every cargo of fruit swarms with larvæ, vast numbers of which die from change of climate or some other cause, and many doubtless come to maturity. It is obvious, however, that numbers are also hatched and reared on the spot, from the fact that the places in which *old* currants have been stored, so as to serve them for food, are always the most prolific. Indeed, the new fruit only begins to come in at the end of September, when the moths are already appearing in plenty. It is, of course, impossible to obtain certain information as to *species* from workmen or even from the owners or foremen of the warehouses; but, as far as I can judge, the same species in equal numbers have been found for many years past. Very certain it is, that they have formed a settlement from which it would be no easy task to expel and exterminate them.

From larvæ secured and eggs obtained I hope materials will be furnished for interesting papers from my friend Mr. Buckler in the future.

Pembroke: 1875.

NEW GENERA AND SPECIES OF LONGICORNS FROM SOUTH AMERICA.

BY H. W. BATES, F.L.S.

CHALCOPRIONUS, nov. gen. (*Prionidæ*, sub-fam. *Ctenoscelinæ*).

♂. *Corpus elongato-oblongum, suprâ sub-metallicum, nudum. Caput exsertum. Oculi emarginati, sub-grosse granulati. Mandibulæ elongatæ, subrectæ, extus apicem versus dentatæ, intus utrinque prope basin unidentatæ. Palpi haud elongati, apice vix dilatati, truncati. Thorax latus, transversus, lateribus crenulatis, ante basin spinosus, deinde ad basin subito angustatus; suprâ subtilissime granulatus, opacus, lineis nitidioribus scabrosis. Elytra thorace angustiora et quintuplo longiora, parallelogrammica, apice ad suturam spinosa. Antennæ corpore dimidio longiores, filiformes, tuberculatæ, nudæ; articulo primo elongato, gradatim clavato, tertio cæteris longiori, 4—11 subæqualibus, 10—11 solùm subltus strigosis. Pedes elongati, gracilès, femoribus tibiisque anterioribus denticulatis; tarsi articulis 1—3 subltus breviter, dense pilosis, 3^{io} breviter bilobo; anticis lateribus longe ciliatis. Corpus subltus subnitidum; mesosternum convexum. Metasternum elongatum, episternis prope apicem paulo angustatis. Abdominis processu inter coxas anguste triangulari.*

♀. *Thorax elytris multo angustior, omnino scabroso-punctatus et inæqualis, spina valida laterali mediana, altera minori juxta angulos anticos. Antennæ corpore paulo breviores, haud tuberculatæ, articulis terminalibus minute striatis. Pedes antici haud denticulati, nec tarsi ciliatis.*

This fine new Prionid might, at first glance, be taken for a *Pyrodes*, in consequence of its metallic colour and general form; it belongs, however, in reality to a different section of the family. But it has no close relationship to the metallic *Psolidognathi* of the same section, having more real affinity with *Ctenoscelis*, in spite of its very different facies. In the sculpture of the thorax of the ♂, as well as in the form of the mandibles, and to a great extent also of the antennæ, it closely approaches *C. ater*; from which it differs in the form of the thorax, especially in the long lateral spine; in the quite different shape of the same organ in the ♀, and in the only partially and minutely denticulated tibiae. As *Mecosarthron* in the sub-family *Ctenoscelinæ* presents some approximation to it in the length of the thoracic spine, our new genus may perhaps be admitted into the same group.

CHALCOPRIONUS BADENI, n. sp.

Elongato-oblongus, nigro-cupreus, capite et mandibulis grosse scabroso-punctatis, illo medio usque ad collum sulcato; thorace subtilissime punctulato, opaco, dorso vittis medianis duabus, lituraque utrinque laterali, scabrosis, nitidis; elytris densissime subtiliter ruguloso-punctulatis, basi-grosse punctatis, utrinque costulis tribus sub-obsoletis: ♀ differt thorace grossissime scabroso, elytris lætius cupreis.

Long., ♂, 1 in. 9 lin.; ♀, 1 in. 11 lin.

A pair of this handsome and remarkable Longicorn were brought home by their captor, Herr Wallis, who took them at Frontino, on the Cauca side of the Central Cordillera in New Granada. The general colour is dark coppery-brown or black, the elytra (especially in the ♀) being most metallic. Owing to the dense and fine sculpture, the surface, though without pubescence, is scarcely shining. The thorax in the ♂ is considerably wider than the elytra, and its width is more than double its length. Anteriorly, it is not deeply emarginate to receive the head, and the anterior angles are broadly truncated; from the exterior end of the truncature it rather rapidly widens (with crenulated edges) to the very acute lateral spine placed much behind the middle, whence it rather suddenly narrows to the basal angle. The surface is very minutely punctulate and opaque, except for the scabrous shining lines, of which there are two running along the disc from the fore to the hind margin (each dilated in the middle), and one on each side extending from the lateral spine to the disc, and thence abruptly bent towards the base. The thorax in the ♀ is equally short, but much narrower;

the anterior angles terminate in a short spine, and the long lateral spine is exactly in the middle, the surface being covered with coarse rugged sculpture, and with two irregular longitudinal ridges.

The male of this fine insect is in the possession of Dr. F. Baden of Altona, to whom my collection is indebted for the female specimen.

LAMIIDÆ, sub-fam. *Anisocerinae*.

PHACELLOCERA PLAGIATA, *n. sp.*

P. plumicorni robustior; fusca, vitta lata mediana a vertice usque prope elytrorum apicem (ibique dilatata) ducta, ochraceo-cinerea; antennis minus elongatis, nigro-piceis, articulo 3^{io} apice nodoso; Long. 6½ lin.

Of rather broader and more robust form than either *P. plumicornis* or *Batesii*, and totally different in colour, the upper surface being dark brown, with a broad central ochreous-ashy vitta extending from the top of the forehead, along the crown, thorax, and sutural region of the elytra, nearly to the apex, just before which it is widely dilated, thus leaving only a narrow apical border of the dark ground colour. The sculpture of the elytra is very different from that of the other species, the brown portion (especially towards the base) being thickly punctured, with the anterior edges of the punctures raised in granulae. The body beneath scantily pubescent. Antennae piceous; apex of third joint enlarged and hairy, fourth and following simple. Tarsi testaceous tawny. The pro- and meso-sterna are narrow and simple.

Yurimaguas, R. Huallaga: collected by Mr. E. Bartlett.

CHALASTINUS RECTICORNIS, *n. sp.*

C. Egaensi (White) *simillimus, at antennis articulis 5—7 ♂ rectis; fuscus, ochraceo-irroratus, lineaque dorsali thoracis ochracea; elytris maculis majoribus nonnullis fulvis, fusciaque obliqua ante apicem ochracea, antice late nigro-marginata. Long. 6—7 lin. ♂.*

Much resembling *C. Egaensis*, but distinguished by the antennal joints being quite straight in the ♂, instead of the 5th to 7th being curved and produced interiorly at their apex; these joints also are considerably longer than in *C. Egaensis*. In other points there are several minor differences. The elytra are much more triangular, and the basal crests much more elevated. The posterior ochreous fascia is sub-interrupted near the suture (as in *Egaensis*), but preceded by a much broader black fascia, and there is a conspicuous oblong black spot on the disc of each, near the suture.

Santarem, Amazons; from a collection obtained by Mr. Janson. Three examples, all ♂.

GYMNOCERUS BADENI, *n. sp.*

Oblongo-ovatus, suprà cinereo-albus, fusco-variegatus; thoracis dorso valide tri-tuberculato; elytris disco postico bicostatis, basi granulatis; antennis articulo tertio apice perpaulum, 4^{to} magis, incrassatis, nudis; articulo 11^{mo} precedenti haud breviori; mesosterno bituberculato. Long. 8 lin. ♂.

In general form and facies similar to *Anisocerus scopifera* and *onca*; but having the form of antennæ of *Gymnocerus* (especially *G. monachinus*). The head is brown and punctured in front; ashy-white on the crown. The thorax has a strong conical lateral spine, and three large tubercles in triangle on the disc; the tubercles and other lesser elevations are black, the space between them tawny-brown, the rest ashy-white. The scutellum is tawny. The elytra are relatively narrower and more trigonal than in the typical species; the basal part is granulated, densely so only on the elevations, and on the posterior disc of each are two raised lines united behind; the general colour is ashy-white, the granules and some patches dark brown, the largest patches forming a flexuous belt from the shoulder towards the scutellum and suture (with a separate round spot near the latter), and a second short belt behind the middle varied with long tawny streaks. The legs and antennæ are pitchy-red; the tarsi ashy, with the claw joint red.

Frontino, New Granada; coll. Dr. Baden and H. W. Bates.

HOPLISTOCERUS DIVES, *n. sp.*

Oblongus, æneo-viridis, glaber, elytris crebre æqualiter punctatis, vix nitidis; pedibus antennisque nigro-chalybeis, femoribus posticis abdomineque late rubris.

Long. 5 lin. ♂.

Head brilliant golden-green, front convex, closely and confluent punctured, vertex transversely strigose, labrum red. Thorax unarmed, but sides slightly tumid, brilliant brassy-green, and surface transversely strigose. Scutellum broad, truncated behind, brassy-green. Elytra dark silky-green with purplish reflexions, uniformly punctured. Legs and tarsi dark steel colour, hind femora and abdomen red. Antennæ (♂) longer than the body by one-half; scape forming an elongated smooth club; 2nd to 4th joints with a strong sharp spine at their apices; 11th short, claw-like.

Bahia; taken by Mr. Edwyn Reed.

The species is perfectly congeneric with *H. gloriosus*, and the form of the scape of the latter (thickened from near the base) proves to be only a specific character.

The genus DEMOPHO, Thoms., admitted by Lacordaire, cannot be separated from *Hoplistocerus*. *D. hamatus*, which I have had an

opportunity of studying in the rich collection of Dr. Baden, somewhat resembles *H. gemmatus* (Bates), Nicaragua, but is a perfectly distinct species, with an obtuse lateral tubercle to the prothorax.

ONYCHOCERUS AMPLIATUS, n. sp.

Magnus, ovatus; infrà niger, opacus, suprà cinereus; thorace parvo, utrinque ante et supra coxam spina magna, disco tuberculis duobus valde elevatis; elytris amplissimis, suprà utrinque crista valida basali, tuberculis duobus disci, alteris majoribus geminatis posterioribus, alteraque prope apicem, cinereis, plagis utrinque marginalibus nigris; pedibus nigris, opacis. Long. 10—11 lin. ♀.

Relatively much broader than *O. scorio*, with much smaller thorax. The antennæ (♀) are only two-thirds the length of the body, with long 2nd joint (half as long as the 3rd), and 5th to 10th abbreviated and dilated; 11th claw-shaped. All the tibiæ are much compressed and dilated towards the apex, and have a conical prominence on the outer edge near the knee joint, the rest of their edges being simple. The spine on the flank of the prothorax (below the lateral tubercle) is longer than in *O. scorio*, and the two dorsal tubercles more elevated. The elytra are broader and shorter; the shoulders produced and sub-falcate, the sides sinuated behind them, and much rounded outwards behind the middle; the ridge-shaped tubercles on the posterior part of the disc are double and much elevated; the humeral prominences and basal crests are tuberculated, and there is a line of tubercles along the suture.

R. Ucayali and Macas; Peru and Equador. The ashy colour of the upper surface varies, probably according to locality, from uniform ashy-white to ashy more or less clouded with dusky.

EUSTHENOMUS, nov. gen.

Gen. Platysterno affine atque quoad formam simile; differt antennis utroque sexu elongatissimis, etc. Corpus oblongum. Caput fronte infrà dilatata; oculis distantibus, subtiliter granulatis. Antennæ (♂) corpore triplo longiores simplices; scapo pyriformi, articulis 8—11 valde elongatis, subæqualibus. Thorax dorso valde bicarinatus, spina laterali magna, acuta, simplici. Elytra apice late rotundata; humeris valde exstantibus, acutis; dorso utrinque valde unicarinata, carinis post scutellum carina transversali conjunctis. Mesosternum transversum, antice bituberculatum; acetabula extus late hiantia. Tarsi antici (♂) vix dilatati, articulo primo lateribus ciliatis.

This genus will not fit any of Lacordaire's "groups." In its character it is almost exactly intermediate between the genera *Platysternus* and *Steirastoma*, having the antennæ of the latter, and the thorax, elytral carinæ, and open middle acetabula of the former. With regard to the lateral spines of the thorax, although they have not a tubercle on their anterior sides as in *Platysternus*, there is a similar

tubercle, a little further removed, situated on the flanks of the thorax. The strongly raised median carina on each elytron, curved outwards near the base, and emitting a branch to the suture, is a character which it shares only with *Platysternus*; the base of the carina also projects forward into a sinuation in the hind margin of the thorax as in *Platysternus*. There is a similar carina near the suture, and a less conspicuous one near each side. The humeral angles of the elytra differ in form from those of all allied genera at present known; they project as a strong conical tooth, with the acute apex not pointing forward, as in *Polyrhaphis*, but laterally, and the anterior margin perfectly straight: the apices of the elytra are very obtusely rounded. The long and slender apical joint of the antennæ separates this genus from the *Anisocerinae*, with which it has many points in common. In the single example supposed from the simple anterior tarsi to be a ♀, the antennæ are imperfect, but they show no abbreviation of the joints as far as the 6th.

EUSTHENOMUS WALLISI, n. sp.

Oblongus, latus, tomento carneo-fulvo fusco-maculato vestitus; capite grosse punctato; thorace carinis dorsalibus nigris, nudis; elytris basi (cum carinis) nigro-granulatis, cæteris fusco-punctatis, maculisque difformibus et fascia lata pone medium (ad suturam interrupta) velutino-atrofuscis: antennis griseis, haud ciliatis, articulis apice nigris.

Long. 1 in. Lat. pone humeros, 6 lin.

Similar in form and convexity to *Platysternus hebraeus*, but antennæ much longer and more robust. The whole upper surface is clothed with a pinkish light brown tomentum, the granulations on the head and base of the elytra, and the stronger carinæ, being black, naked, and shining. The elytra are much varied with markings and spots of a velvety purple-brown colour; some of the largest spots uniting behind the middle into a rather broad fascia, interrupted near the suture and on the sides. The under-side is scantily pubescent, black and shining.

Taken at Frontino, on the Cauca side of the Cordillera, New Granada, by Herr Wallis. Two examples only, of which one has been kindly given me by Dr. Baden, the other remaining in his collection.

Bartholomew Road, Kentish Town, N.W.:

April 1875.

Localities for Typhaeus vulgaris.—It may be of interest to note that at 6 p.m. on March 25th, I found a ♂ specimen of this beetle in Kensington Gardens, in the act of taking flight and very lively. Three days after, I found another ♂, dead, in one of the open drives of the New Forest.—A. O. WARD, 13, Parkfields, Putney: April 9th, 1875.

Arrested development in Timarcha coriaria and Lagria hirta.—The following instances of arrested development, causing a want of symmetry in the legs of insects, are interesting, and seem to me to be worth publishing, inasmuch as, so far as I know, no similar instances have been recorded. In a ♀ specimen of *Timarcha coriaria*, taken last autumn in Switzerland, this want of development occurs in the right middle leg, all the others being of normal size. The following are the dimensions of the stunted right leg, and its normal fellow on the left side:—Femur, L., 3 millimetres, R., very slightly shorter; tibia, L., 3 mill., R., 1.75 mill.; tarsi, L., 2 mill., R., 1 mill.: the claws being exceedingly minute and barely projecting beyond the last tarsal joint, all of which are present and equally developed, though not attaining the normal size.

In a specimen of *Lagria hirta*, the dwarfing occurs in the posterior pair of legs, and in this case again the right leg is the stunted member. The measurements of this specimen are:—Femur, about 2 mill. in both legs; tibia, L., 2 mill., R., 1.75 mill.; tarsi, L., 1.50 mill. (last joint wanting), R., 1 mill.

In both cases the want of symmetry caused by the arrested growth is more conspicuous than would appear from the above figures.—W. A. FORBES, 35, S. Castle Street, Edinburgh: *March 21st*, 1875.

On some European 'Micros' away from home.—Among the species described by the late Dr. B. Clemens, Mr. Stainton recognises many European species, as shown in his valuable re-publication of Dr. Clemens' papers.

Prof. Frey, of Zurich, has recently described a few American species from the vicinity of Cambridge, Massachusetts, and among them recognises *Lithocolletis trifasciella*, var.? Haw. I have never met with this, nor indeed any 'Micro' mining honeysuckle leaves, but I learn from Prof. C. V. Riley that he has met with a species (probably *L. trifasciella*) mining them at Chicago. It has probably not extended its migrations southward since its arrival in this country.

Among the species new to this country which have come under my observation (some 300 in number), many, no doubt, will prove to have been previously known in Europe.

Among them I recognise *Endrosis fenestrella* from California, *Tinea tapetzella* from Canada, and *T. pellationella* from Canada and Kentucky; and the beautiful *Argyresthia Gødartella* from Canada. It is a little singular, that the greater number of European species heretofore found in this country are found as yet only in Canada and the more Northern States. On the other hand, some genera found in Europe, e.g. *Cleodora*, have not been found in this country north of Texas. But the particular species to which I wish to draw attention, is the well-known and pretty little *Gelechia Hermannella*, and a singular (climatic?) variety of it. So far as I can learn, no variety of this species has yet been found in Europe, though the species occurs from Lapland to Naples.

Some three years ago, I found the larvæ mining leaves of *Chenopodium* on the shore of Lake Michigan, lat. 43 deg. N.; and from them I bred several specimens, differing in no essential particular from the figure in Nat. His. Tin., Vol. ix, plate 8. Afterwards, I often found them mining the same leaves in Northern Kentucky, lat. 38 deg. (nearly); but, as I had as many specimens as I then wanted, and never thought of a variety, I did not attempt to breed them until the summer of 1874. The larva

was the same, the mine was the same, and the mined leaves were of the same plant as I had found in Wisconsin, but, to my surprise, all the specimens that I have yet bred differ so decidedly from the ordinary *G. Hermannella*, that probably any Entomologist would have considered them, if only captured, as of distinct species. Yet a little ingenuity, on comparison of the specimens, will show how the one pattern of ornamentation is readily resolvable into the other. One who knows this 'Micro,' or the figure of it before mentioned, will remember the silvery fascia dark margined on both sides, the small silvery spot before the fascia beneath the fold, and the larger one just above the fold behind the fascia. Now, suppose the dark margins of the fascia increased in quantity, especially the posterior dark margin; then suppose all the dark margin *behind* the fascia gathered on the costal margin forming a velvety black spot so large that it touches the small silvery spot above the fold behind the fascia; in like manner, suppose the anterior dark margin of the fascia gathered together in a velvety black spot *before* the fascia on the dorsal margin, large enough to incorporate the silvery spot before the fascia beneath the fold; then suppose the fascia widely interrupted in the middle:—and you have the variety. The costal part of the fascia thus becomes the anterior silvery margin of a large velvety-looking black costal spot, which, by its confluence with the silvery spot above the fold, appears to be margined with silvery at that point, and sometimes has a few silvery scales scattered through it; and the dorsal portion of the fascia becomes the hinder silvery margin of a large velvety-looking black dorsal spot, which, by its confluence with the silvery spot beneath the fold, appears to be margined with silvery at that place, and sometimes contains a few scattered silvery scales. Except that the quantity of black and silvery scales is increased somewhat, the insect does not differ from the old form.

Miss Mary E. Montfeldt, of St. Louis, Missouri, informs me that she has found only the variety there. St. Louis is also near lat. 38 deg., that is, nearly 3 deg. south of Naples; but then we are on the isothermal line of London, England, with much hotter summers and colder winters. But whether climate has anything to do with it is matter of conjecture.—V. T. CHAMBERS, Covington, Kentucky, United States: *January 5th, 1875.*

ENTOMOLOGICAL SOCIETY OF LONDON: 1st March, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

W. D. Robinson-Douglas, Esq., of Castle Douglas, N.B., formerly a subscriber, was elected a member of the Society.

Mr. F. H. Ward exhibited living examples of a *Lepisma* distinct from *L. saccharina*, and unknown to Sir J. Lubbock, to whom they had been submitted. They had been found in and about a bake-house in the neighbourhood of London. Mr. McLachlan said it would be interesting to ascertain if American flour were used in the bake-house, as the species might be identical with one of those recently described by Dr Packard in America. Mr. Ward said he had seen the species from Philadelphia. He also exhibited a set of microscopic slides illustrating the æconomy, &c., of the chigoe.

Mr. Champion exhibited a well-grown individual of *Empusa pauperata* sent by Mr. J. J. Walker from Corfu.

Mr. W. C. Boyd communicated some notes with reference to the fleas from rabbits'

ears exhibited by Mr. Verrall at the previous meeting. He had found as many as 300 fleas or thereabouts in the ears of one rabbit, but did not think they troubled the animal much as there were no signs of inflammation. He also stated that fleas swarmed on hedgehogs.

Mr. Dunning called attention to a paper by Dr. Leconte on entomological generic nomenclature, appearing in the December No. of the 'Canadian Entomologist.'

The Rev. H. S. Gorham read descriptions of 18 new species of *Endomychidæ*.

15th March, 1875.—The President in the Chair.

The Rev. R. P. Murray communicated notes bearing on the question of the specific identity or distinctness of Butterflies of the genus *Terias*, known as *T. Hecabe*, L., *Æsiope*, Mén., and *Sari*, Horsfld., and exhibited the insects. Mr. Miskin of Brisbane informed him that he had bred typical *Hecabe* and *Æsiope* from larvæ feeding on the same plant (a species of *Indigofera*), and Mr. Murray had received numerous intermediate forms from Queensland, and also from N. W. India, where they appeared to be equally common. In Japan, typical *Hecabe* was common, but *Æsiope* apparently absent, though a species occurred there which he could not distinguish from the W. African *Brenda*, Doubt. As regards *T. Sari*, the evidence was not so strong, but still he thought it might be a form of the same species.

Professor Westwood said it would be important to ascertain whether the supposed species belonged to the same or different broods, reminding the meeting of the differences in the broods of our common White Butterflies which had been the cause of their receiving distinct names. Mr. Butler was disposed to doubt the correctness of the supposition that *T. Sari* was only a form of *Hecabe*, though he thought the breeding of the latter and *Æsiope* from the same food-plant was a strong point in favour of their identity.

Mr. A. F. Sealy exhibited and distributed examples of an *Ornithoptera*, from the Malabar Coast. He had bred them from larvæ feeding on *Aristolochia indica*.

Prof. Westwood exhibited drawings of new forms of *Heteromera*, illustrating several interesting new genera and species to be described by him.

Mr. Butler read a review of Boisduval's recently published volume of the Suites à Buffon, Lépidoptères, containing the *Sphingidæ* (including *Zygæna*, &c.). His criticisms were of an adverse nature as to the letter-press, and favourable as to the plates.

Dr. Sharp communicated some necessary corrections to his paper on the Water-Beetles of Spain.

Mr. McLachlan stated that an examination of examples of the *Lepisma* exhibited at the last meeting by Mr. Ward had not convinced him of its identity with any of Dr. Packard's recently described American species. Prof. Westwood said he had seen British specimens of *Lipura corticina*, Bourlet, not included as native in Sir John Lubbock's Monograph.

Mr. F. Smith read descriptions of new genera and species of Indian Aculeate *Hymenoptera*, collected by Mr. Rothney; referring to species of *Nomia* and allies with capitate antennæ, he stated that he was acquainted with 5 species in which that peculiarity existed.

Mr. Baly communicated descriptions of new genera and species of *Phytophaga*.

Mr. C. O. Waterhouse exhibited a living example of *Monohammus Heros* bred in England from foreign timber. He also read the first part of a paper on the Lamellicorns of Japan, including 40 new species.

5th April, 1875.—The President in the Chair.

W. L. Distant, Esq., of Streatham College, Dulwich, was elected an ordinary member.

Mr. Jenner Weir exhibited a number of juvenile *Mantidæ* that had emerged from an egg-case received from Ceylon, and remarked on their great resemblance to those recently exhibited from Borneo.

Mr. Bond exhibited a locust found alive at the bottom of a dry well at Brighton in February. The species was uncertain.

Mr. Sealy read notes on the habits of the species of *Ornithoptera* from the Malabar coast exhibited at the last meeting. The insect was allied to *O. Amphrisius*, but there appeared to be doubt as to its identity with that species. The pupa possessed the power of causing a sound. He called attention to a peculiarity in the formation of the hind-wings of the ♂, there being a large pouch on the anal margin filled with fluffy hairs.

Mr. McLachlan read extracts from a letter received from Pueblo, Colorado, in which the writer stated that in opening his potato-pits in winter, he had found the potato-beetle (*Doryphora 10-lineata*) moving briskly and eating greedily, and expressed an opinion that if the importation of potatoes into England were not soon stopped, the beetle would soon be here. Mr. McLachlan also read a note by Lieut. Carpenter of the United States Geological Survey, contained in the reports of the Zoological collections made by him in Colorado in 1873 (Washington: 1875). Lieut. Carpenter stated that not a single specimen of the beetle had been seen east of the dividing range. He was of opinion that the insect was dispersed solely by means of seed-potatoes, as it was of sluggish habits and incapable of spreading widely by its own instinct. Its absence from the Salt Lake Basin might be accounted for from the fact of the cheapness of vegetables in the Mormon settlements not rendering it necessary to import potatoes.

Mr. Bates alluded to the original home of the insect, which he thought was the eastern plateaus of the Rocky Mountains, and he had seen it in large numbers from the plateau surrounding the city of Mexico. He thought that the chance of immunity from it in Europe rested more with climatic conditions than anything else, for although the extremes of heat and cold in those parts of America where it was now proving destructive were greater than here in England, yet it was not there subjected to the great moisture of our climate which would possibly be fatal to it. In connection with this, he alluded to the great similarity of the insect-fauna of California (where the beetle had not appeared), and other parts of North-Western America with that of Western Europe, a similarity greater than that which existed between our fauna and that of the nearer eastern States of America.

Mr. S. Stevens said he had received the beetle in large numbers from Orizaba.

Mr. Jenner Weir alluded to the steps taken by our Government concerning an inspection of potatoes imported from America. The quantity was probably only about 1000 cwt. annually, and consisted solely of seed-potatoes which came in a very clean condition.

Mr. E. Saunders read the first portion of a Synopsis of British *Hemiptera-Heteroptera*.

i.

LIST OF CONTRIBUTORS	xv.
GENERA AND SPECIES NEW TO SCIENCE ..	xvi.
" " " " " BRITAIN ..	xviii.
LARVÆ OF BRITISH SPECIES DESCRIBED ..	xviii.
REVIEWS	xix.
OBITUARY	xix.
WOOD-CUTS	xix.
ERRATA	xix.

INDEX TO GENERAL SUBJECTS.

	PAGE
<i>Abdera triguttata</i> , Gyll., Occurrence in Britain of	63
Abnormal appearance of <i>Noctua festiva</i> ...	139
<i>Acanthosoma griseum</i> , Additional notes on the egg-laying, &c., of	42
<i>Acidalia straminata</i> , Description of the larva of	116
<i>Acrea</i> from West Africa, Descriptions of five new species of	130
Additional notes on the egg-laying, &c., of <i>Acanthosoma griseum</i>	42
Additions to the British list of Tenthredinidæ	65, 250
" " " list of British Hemiptera	62
<i>Agrotis</i> (<i>Noctua</i>) <i>subrosea</i> , Description of the larva of	67, 89
<i>Amara</i> new to Britain, Note on a species of	207
<i>Anerastia lotella</i> , Description of the larva, &c., of	186
Anthomyiidae, On the arrangement of the British	199, 220
<i>Aphelocheirus æstivalis</i> , Note on	16, 117
" " in Norfolk, Capture of	92
<i>Aphodius villosus</i> , Capture of	39
Apion from the Shetland Isles, Description of a new species of	128
" new to the British list, Note on a species of	156
<i>Aplecta ocellata</i> bred in October	157
Aquatic Coleoptera, On a new family of European	101
Arrangement of the British Anthomyiidae, On the	199, 220
Arrested development in <i>Timarcha coriaria</i> and <i>Lagria hirta</i>	279
<i>Asthena Blomeraria</i> , Natural history of	87
<i>Aulacothorax exilis</i> , Boheman, Note on	137
Beetles occurring in the Shetland Isles, Note on	112
<i>Boarmia roboraria</i> , Description of the larva, &c., of	40
Bold, Death of Thomas John	20
Bolivian Rhopalocera, Note on	65
<i>Bombyx rubi</i> from the larva, How to rear	188
<i>Botys nubilalis</i> (<i>lupulinalis</i>) in London, Occurrence of	256
Brassoline from Bogotá, Description of a new species of	203
British Hemiptera—Additional species	9, 142, 144, 173, 263
" " " Additions to the list of	62

	PAGE
British Hemiptera: correction. <i>Deracoris fornicatus</i>	117
" " : memoranda for residents and tourists	41
" " -Homoptera, On certain British	268
" list of Tenthredinidæ, Additions to the... ..	65, 250
" oak-galls	109
" Tortrices, Notes on	12, 28, 59, 132, 152, 191
Brood of white-ants (Termites) at Kew	15
Butterflies, Descriptions of new species of	56
" " " six new species from South America, West Africa, and Borneo	182
" from Costa Rica, Descriptions of three new	36
" On a collection of, made by Mr. J. Milne in Newfoundland	244
" recently brought from Cape Coast, West Africa, Notes on a collection of, with description of a new species from Natal	57
" Notes on Japanese, with descriptions of new genera and species... ..	166
Capture of <i>Aphelocheirus æstivalis</i> in Norfolk	92
" " <i>Aphodius villosus</i>	39
" " <i>Noctua sobrina</i>	89, 116
" " <i>Pachnobia alpina</i>	89
" " <i>Papilio Antimachus</i> , &c., Note on	113
Captures of Coleoptera near Llangollen and Manchester, Notes on	15
" " Hemiptera on the west coast of Scotland, with description of a new species	118
" " Noctuidæ at St. Catherine's, in the province of Ontario, Canada West	258
Carabidæ and descriptions of new species, Notes on Cicindelidæ and... ..	22, 95, 177
Catoptria aspidiscana, &c., Early appearance of... ..	19
Cetonia aurata, Late appearance of	208
Cetoniidæ, Description of a new species of	35
Chrysomela, Observations on a viviparous	135, 156
Chrysopa tenella, &c., at Weybridge	65
" , The British species of, examined with regard to their powers of emitting bad odours	138
Cicada gigas, Notes on the habits of	175
Cicindelidæ and Carabidæ, and descriptions of new species, Notes on... ..	22, 95, 177
Coccinella eating Lepidopterous ova	85
Coleoptera at Aviemore, Inverness-shire... ..	64
" belonging to the genus <i>Toxicum</i> , Description of a new species of Heteromerous	126
" from Japan, Description of a new genus and species of	54
" " South Morocco, Notes on	213
" near Llangollen and Manchester, Notes on captures of	15
" , Notes on rare Kentish	37
" , On a new family of European aquatic	101
" , On imported	135
Coleopterous insects belonging to the family Rutelidæ, On two new	52
Comparative descriptions of the larvæ, &c., of <i>Xylophasia lithoxylea</i> and <i>polyodon</i>	208
Confirmation of <i>Dianthœcia albimacula</i> as a British species, with description of its larva, &c.	16

	iii.
	PAGE
<i>Coranus subapterus</i> , De Geer, On the mode of stridulation of	137
<i>Coriscium Brongniardellum</i> in Ireland	117
<i>Cosmopteryx Scribaiella</i> bred	18
Cossonidæ, Diagnostic characters of undescribed	149
<i>Crambus verellus</i> at Folkestone	117
<i>Cremastocheilus</i> from California, Description of a new species of	55
Crotch, M.A., Death of G. R.	70
<i>Crymodes exulis</i> , Occurrence of	85
Curculionidæ, A probable heliciform case-making larva among the	239
<i>Deilephila euphorbiæ</i> , Description of the larva and pupa of	73
<i>Deiopeia pulchella</i> at Folkestone	157, 210
<i>Depressaria Yeatiana</i> bred... ..	157
Description of a new genus and species of Coleoptera from Japan	54
" " " " <i>Japanese Lycoperdina</i>	151
" " " " <i>Papilio</i> from Madagascar... ..	129
" " " " Pulicidæ insect from Ceylon	246
" " " " species of <i>Apion</i> from the Shetland Isles	128
" " " " " <i>Brassolinæ</i> from Bogotá	203
" " " " " <i>Cetoniidæ</i>	35
" " " " " <i>Cremastocheilus</i> from California	55
" " " " " <i>Eriocampa</i> from Scotland; with note on a variety of <i>Taxonus equiseti</i> , Fall... ..	128
" " " " " <i>Heteromorous</i> Coleoptera belonging to the genus <i>Toxicum</i>	126
" " " " " <i>Liburnia</i> from Biskra (Algeria)	119
" " " " " <i>Proctotrypidæ</i> from Ceylon	197
" " " " " the larva of <i>Acidalia straminata</i>	116
" " " " " <i>Agrotis</i> (<i>Noctua</i>) <i>subrosea</i>	67, 89
" " " " " , &c., of <i>Anerastia lotella</i>	186
" " " " " " <i>Boarmia roboraria</i>	40
" " " " " and pupa of <i>Deilephila euphorbiæ</i>	73
" " " " " of <i>Dianthœcia albimacula</i>	16
" " " " " <i>Noctua rubi</i>	210
" " " " " , &c., of <i>Erastria fuscula</i>	66
" " " " " " <i>Heliothis dipsacea</i>	256
" " " " " " <i>Pyrausta punicealis</i>	66
" " " " " two new genera of <i>Scarabæidæ</i>	123
" " " " " three new species of <i>Trigonurus</i>	204
Descriptions, Comparative, of the larvæ, &c., of <i>Xylophasias lithoxylenæ</i> and <i>polyodon</i>	208
" of five new Lucanoid Coleoptera	6
" " " species of <i>Acræa</i> from West Africa	130
" " three new Butterflies from Costa Rica	36
" " new <i>Lycænidæ</i> from West Africa	36
" " species of Butterflies	56
" " " " <i>Eumorphus</i> and <i>Corynomalus</i>	180
" " " " " <i>Lycænidæ</i> from South America	104
" " " " referred to in Mr. Blackmore's notes on Coleoptera from South Morocco	217

	PAGE
Descriptions of Rhopalocera from Madagascar	226
„ „ six new species of Butterflies from South America, West Africa, and Borneo	182
„ „ „ „ „ Diurnal Lepidoptera in the collection of the British Museum	163
„ „ some new species of the genus <i>Pachytricha</i>	2
„ „ three new species of <i>Erotylidæ</i>	78
„ „ two new genera and some new species of <i>Pselaphidæ</i>	79
„ „ „ „ species of <i>Heterocerous</i> Lepidoptera in the collection of the British Museum	77
Diagnostic characters of undescribed <i>Cossonidæ</i>	149
<i>Dianthæcia albimacula</i> as a British species, Confirmation of, with descriptions of its larva, &c.	16
Domestic Entomology: a word in season	90
Dorville, Death of Henry	160
Early appearance of <i>Catoptria aspidiscana</i> , &c.	19
Egg-laying, &c., of <i>Acanthosoma griseum</i> , Additional notes on the	42
<i>Elachista serricornis</i> , &c., at Witherslack	85
<i>Emmelesia unifasciata</i> three years in the pupa state	140
<i>Endopisa nigricana</i> , Note on	85
Entomological scrap, An	159
„ Society, Haggerston	162
„ „ of London, Proceedings of the...45, 69, 93, 161, 190, 212, 239	
„ „ , South London	190
<i>Ephestia</i> occurring in Britain, On the species of	269
<i>Erastria fuscula</i> , Description of the larva, &c., of	66
<i>Eriocampa</i> from Scotland, Description of a new species of	128
<i>Erotylidæ</i> , Descriptions of three new species of	78
<i>Eubolia lineolata</i> , Note on	16
<i>Eudorea coarctalis</i> hibernating	19
<i>Eumorphus</i> and <i>Corynomalus</i> , Descriptions of new species of... ..	180
<i>Eupitheciæ</i> two years in the pupa state	16
European 'Micros' away from home, On some	279
“Fauna and Flora of Norfolk; part v, Lepidoptera, by C. G. Barrett:” Review	43
Fauna of Lundy Island, A further contribution to the	111
Food-plant, &c., of <i>Lygris reticulata</i> , On the	139
<i>Gonopteryx rhamni</i> , Hermaphrodite	113
Gray, Death of Dr. John Edward, F.R.S.	262
Habits of <i>Cicada gigas</i> , Notes on the	175
Haggerston Entomological Society	162
<i>Halonota grandævana</i> at Hartlepool, Re-occurrence of	85
<i>Harpalus latus</i> , L., Note on a curious race of	84
Heliciform case-making larva among the <i>Cureculionidæ</i> , A probable	239
<i>Helicopsyche</i> -cases from Sikkim	239
<i>Heliothis dipsacea</i> , Description of the larva, &c., of	256
<i>Helophorus tuberculatus</i> , Gyll., Note on the occurrence in England of	135
„ „ in Yorkshire	235
Hemiptera, Additions to the list of British	62

Hemiptera, British—Additional species	9, 142, 114, 173, 263
„ -Homoptera, On certain British	120, 147, 228, 229
„ on the west coast of Scotland, Captures of, with description of a new species	118
„ : Synonymic Notes	184, 232
Hermaphrodite Gonopteryx rhamni	113
Herrich-Schäffer, Death of Dr.	20
Homoptera, Notes on British, with descriptions of additional species ..	193
How to rear Bombyx rubi from the larva	188
Hybrids between Smerinthus ocellatus and S. populi	116, 157
Hydrophilidae, On three new species of ..	247
Illustrations of Insect Monstrosities. On a monstrous stag-beetle (Lucanus elaphus)	32
Imported Coleoptera, On	135
“Insects abroad; by J. G. Wood:” Review	159
Keeley, Death of R. G.	70
Larentia olivata, Natural history of	86
Larva collecting, &c., in the new Forest, Notes on	158
„ of Acidalia straminata, Description of the	116
„ „ Agrotis (Noctua) subrosea, Description of the	67, 89
„ „ Dianthæcia albimacula, Description of the	16
„ „ Noctua rubi, Description of the	210
„ „ „ subrosea, On the	89
„ and pupa of Deilephila euphorbiæ, Description of the	73
„ , &c., of Anerastia lotella, Description of the	186
„ „ „ Boarmia roboraria, Description of the	40
„ „ „ Erastria fuscule, Description of the	66
„ „ „ Heliothis dipsacea, Description of the	256
„ „ „ Pyrausta punicealis, Description of the	66
„ „ „ Xylophasia lithoxylea and polyodon, Comparative descriptions of the	208
Late appearance of Cetonia aurata	208
Lello, Death of William	141
Lemiods pulveralis at Folkestone, Re-occurrence of	117
Lepidoptera in the collection of the British Museum, Description of six new Diurnal	163
„ from South Wales, Notes of	158
Liburnia from Biskra (Algeria), Description of a new species of	119
Life history of Meligethes	46
Liodes humeralis, Note on a variety of	84
Lobesia reliquana, Note on	90
Lomaptera, Note on the existence of stridulating organs in the genus ...	136
Longicorn Beetles from Australia, On a new genus of ..	127
Longicorns from South America, New genera and species of	273
Lucanoid Coleoptera, Descriptions of five new ..	6
Lundy Island, A further contribution to the Fauna of..	111
Lycæna Adonis, Natural history of	113
Lycænidæ from Queensland, New	165
„ „ South America, Descriptions of new species of	104
„ „ West Africa, Descriptions of new	36

	PAGE
Lycoperdina, Description of a new Japanese	151
Lygris reticulata, On the food-plant, &c., of	139
Meligethes, Life History of	46
Monstrosities, Illustration of Insect. On a monstrous stag-beetle (<i>Lucanus elaphus</i>)	32
Myelois cirrigerella, Zk., a species new to Britain, Occurrence of	237
Natural history of <i>Asthena Blomeraria</i>	87
" " <i>Larentia olivata</i>	86
" " <i>Lycæna Adonis</i>	113
" " <i>Syrichthus alveolus</i>	236
New Family of European aquatic Coleoptera, On a	101
" <i>Lycenidæ</i> from Queensland	165
Noctua festiva, Abnormal appearance of	139
" <i>rubi</i> , Description of the larva of... ..	210
" <i>sobrina</i> , Capture of	89, 116
" <i>subrosea</i> , On the larva of	89
Noctuidæ at St. Catherine's, in the province of Ontario, Canada West, Captures of	258
Nola albulalis, &c., in North Kent	68
"Nomenclator Zoologicus; by August von Marschall:" Review	44
"Norfolk, Fauna and Flora of; part v, Lepidoptera; by C. G. Barrett:" Review... ..	43
Note on a curious race of <i>Harpalus latus</i> , L.	84
" " species of <i>Amara</i> new to Britain	207
" " " <i>Apion</i> new to the British List	156
" " variety of <i>Liodes humeralis</i>	84
" " " <i>Taxonus equiseti</i> , Fall.	128
" " <i>Aphelocheirus æstivalis</i>	16, 117
" " <i>Aulacothorax exilis</i> , Boheman	137
" " <i>Bolivian Rhopalocera</i>	65
" " capture of <i>Papilio Antimachus</i> , &c.	113
" " <i>Endopisa nigricana</i>	85
" " <i>Eubolia lincolata</i>	16
" " <i>Lobesia reliquana</i>	90
" " <i>Rhopalocera</i> from Africa... ..	16
" " some Odonata (Dragon-flies) from the Sandwich Islands, &c.	92
" " the existence of stridulating organs in the genus <i>Lomaptera</i>	136
" " occurrence in England of <i>Helophorus tuberculatus</i> , Gyll.	135
Notes on a collection of Butterflies recently brought from Cape Coast, West Africa, with description of a new species from Natal	57
" beetles occurring in the Shetland Isles	112
" British Hemiptera	232, 255
" " Homoptera, with descriptions of additional species... ..	198
" " Tenthredinidæ, with descriptions of new species	107, 250
" " " <i>Tortrices</i>	12, 28, 59, 132, 152, 191
" captures of Coleoptera near Llangollen and Manchester	15
" <i>Cicindelidæ</i> and <i>Carabidæ</i> , and descriptions of new species	22, 95, 177
" Coleoptera from South Morocco	213
" Japanese Butterflies, with descriptions of new genera and species	166

Notes on larva-collecting, &c., in the New Forest	158
„ „ Lepidoptera from South Wales...	158
„ „ Odonata from Newfoundland, collected in 1874, by Mr. J. Milne	241
„ „ Oxyura and other Hymenoptera	39
„ „ rare Kentish Coleoptera...	37
„ „ some Tineina observed in 1874...	238
„ „ the habits of Cicada gigas	175
Oak-galls, British	109
Observations on a viviparous Chrysomela	135, 156
Occurrence in Britain of Abdera triguttata, Gyll.	63
„ „ England of Helophorus tuberculatus, Gyll., Note on the	135
„ of Botys nubilalis (lupulinalis) in London...	256
„ „ Crymodes exulis	85
„ „ Myelois cirrigerella, Zk., a species new to Britain	237
Odonata (Dragon-flies) from the Sandwich Islands, &c., Note on some	92
„ from Newfoundland, collected in 1874, by Mr. J. Milne, Notes on	241
“On the Transformations of the Common House Fly; by A. S. Packard, Jun., M.D.” Review	93
Oxyura and other Hymenoptera, Notes on	39
Pachnobia alpina, Capture of	89
Pachytricha, Descriptions of some new species of the genus	2
Papilio Antimachus, &c., Note on capture of	113
„ „ from Madagascar, Description of a new	129
Pleocoma staff, Schaufuss, On the synonymy of...	206
Proctotrypidæ from Ceylon, Description of a new species	197
Pselaphidæ, Descriptions of two new genera and some new species of	79
“Psyche; organ of the Cambridge (Mass.) Entomological Club:” Review	44
Pulicoides insect from Ceylon, Description of a new	246
Pyrausta punicealis, Description of the larva, &c., of	66
Rare Tortricina	158
Re-occurrence of Halonota grandævana at Hartlepool	85
„ „ Lemiodes pulveralis at Folkestone	117
Resemblance to Ants among the Hemiptera, On the	138
Rhopalocera from Africa, Note on	16
Rutelidæ, On two new Coleopterous insects belonging to the family	52
Scarabæidæ, Description of two new genera of	123
Shetland Isles, Notes on Beetles occurring in the	112
Smerinthus ocellatus and S. populi, Hybrids between	116, 157
South London Entomological Society	190
Stridulating organs in the genus Lomaptera, Note on the	136
Stridulation of Coranus subapterus, De Geer, On the mode of	137
“Supplement to Harvesting-Ants and Trap-door Spiders; by J. T. Mogridge:” Review	189
Synonymy of Pleocoma staff, Schaufuss, On the	206
Syrichthus alveolus, Natural history of	236
Taxonus equiseti, Fall., Note on a variety of	128
Tenthredinidæ, Additions to the British list of	65, 250
„ Notes on British, with description of a new species of Nematus	107

	PAGE
(Termites), A brood of white-ants at Kew	15
"The Butterflies of North America; by W. H. Edwards:" Review...	70
"The Micrographic Dictionary; Third Edition:" Review.	211
Tineina observed in 1874, Notes on some	238
Tortrices, Notes on British	12, 28, 59, 132, 152, 191
Tortricina, Rare	158
Trigonurus, Description of three new species of	204
Typhæus vulgaris, Localities for	279
Variety of <i>Liodes humeralis</i> , Note on a	84
Viviparous <i>Chrysomela</i> , Observations on a	135, 156
Walker, Death of Francis... ..	140
White-ants (Termites) at Kew, A brood of	15
<i>Xylophasia lithoxylea</i> and <i>polyodon</i> , Comparative descriptions of the larvæ of	208
Zetterstedt, Death of Professor J. W.	211

INDEX OF SUBJECTS NOTICED IN THE PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF LONDON.

	PAGE
<i>Abdera triguttata</i> from Aviemore	190
<i>Agrotera nemoralis</i> from Abbot's Wood	93
<i>Amara alpina</i> from Inverness-shire	94
„ <i>continua</i> , Exhibition of	239
Anniversary Meeting	239
<i>Anobium</i> attacking printers' wood-blocks	161
<i>Apion Ryei</i> from Shetland	190
<i>Argas pipistrellæ</i>	93
Boisduval's <i>Sphingidæ</i> , Critical remarks on	281
<i>Brachycentrus subnubilus</i> congregating on leaves of <i>Symphytum</i> ...	45
Butterflies from Japan	94
<i>Calotermes</i> bred at Kew	69
<i>Carpocapsa</i> in a walnut	94
<i>Cathormiocerus maritimus</i> from Portsea	93
<i>Cecidomyia</i> on ash	94
Cetoniidæ, New species of	94
<i>Cheimatobia brumata</i> , Notes on	213
<i>Chrysotoxum festivum</i> gynandromorphous. Correction of an error ...	45
Cockchafers, Paint manufactured from	240
Coffee-borer of Natal	69
Coleoptera from Japan	94
„ „, Notes on Australian	162
<i>Colletes cunicularis</i> successfully introduced at Shirley	240
Colorado Potato-beetle, Notes on	282
<i>Deiopeia pulchella</i> , Reported capture of	69
„ from Arundel	161
<i>Dianthæcia albimacula</i> bred at Portsea	93
<i>Diloba cæruleocephala</i> , Variety of	212
<i>Enpusa pauperata</i>	69, 280

Endomychidae, New species of	...	..	...	...	94, 281
Fleas, Notes on	...	...	...	...	240, 280
Galls on leaves of damson	...	...	...	...	93
Haltica ærata destructive to roses	...	...	...	...	94
Helota from Japan, Species of	...	...	...	...	94
Hemiptera from the Mediterranean	...	...	...	...	212
Hemiptera-Heteroptera, Synopsis of British	...	...	...	...	282
Heteromera, New forms of	...	...	...	..	281
Hymenoptera, Descriptions of new species of Indian	...	...	...	...	281
„ from Calcutta, Collections of...	...	...	...	...	213, 240
„ : revision of the genera Cleptes, Parnopes, Pyria, &c.	...	...	...	...	69
Lamellicorns, Descriptions of Japanese	...	...	...	...	282
Lee's coloured specimens to illustrate the Nat. Hist. of Butterflies	...	...	...	...	94
Lepidoptera, New species of Diurnal	...	...	...	...	69
„ New species of Diurnal, from Whydah	...	...	...	...	162
Lepisma, Probable new species of	...	...	...	...	280
Lipura corticina in Britain	...	...	...	...	281
Locust found at bottom of a well at Brighton	...	...	...	...	282
Lomaptera Higginsi from Borneo	...	...	...	...	190
Longicorn Coleoptera, Synonymic notes on	...	...	...	...	212
Lycæna, New species of	...	...	...	...	162
Lymexylon navale from Manchester	...	...	...	...	190
Macherium maritimum?, Habits of	...	...	...	...	94
Mantidæ from Ceylon, recently hatched	...	...	...	..	282
„ „ Sarawak, recently hatched	...	...	...	...	213
Mantis religiosa and its egg-cases from Meran	...	...	...	...	161
Meetings, Reports of	45, 69, 93, 161, 162, 190, 212, 239, 240, 280, 281,	282	...	...	282
Micro-Lepidoptera gregarious in the pupa state	..	...	...	...	45
Monohammus heros, Exhibition of living example of	...	...	...	...	281
Niptus hololeucus damaging tea	...	...	...	...	212
Noctua glareosa, Variety of	...	...	...	...	239
Nola albulalis	...	...	...	...	161
Nonagria brevilinea	...	...	...	...	161
Oak-galls, Exhibition of	...	...	...	...	212
Ornithoptera from the Malabar coast, Species of...	...	...	...	...	281
Papilio Nireus, Mimicry in pupæ of	...	...	...	...	162
Phylloxera vastatrix, Notes on	...	...	...	...	212
Phytophaga, New genera and species of	...	...	...	...	281
Polistes gallica in Corfu, Habits of	...	...	...	..	240
Pronuba yuccasella bred in England	...	...	...	...	94
Psclaphidæ and Scydmenidæ from Australia and New Zealand	...	...	...	...	162
Pterophorus rhododactylus bred	...	...	...	...	161
Rhopalocera from Santarem	...	...	...	...	239
Scenopinus, Habits of	...	...	...	...	94
Sinoxylon, Habits of a species of, from Burmah	...	...	...	...	45
Snellen von Vollenhoven, Medal struck in honour of	..	...	...	...	45
Solenobia inconspicuella, Probable variety of	...	...	...	...	45
Spider's nest from France, A singular	...	...	...	...	162, 190
Strenia clathrata, Variety of	...	...	...	...	240
Terias, Question as to identity of three species of	...	...	...	...	281
Vanessa Io, Arrested development in	...	...	...	...	45
Westwoodia Howitti from Borneo...	...	...	...	...	190

SPECIAL INDEX.

COLEOPTERA.

	PAGE		PAGE
<i>Abdera triguttata</i>	63	<i>Episcapha taishoensis</i> (sp. n.), Lewis ...	79
<i>Agabus maculatus</i> , Scotch vars. ...	112, 135	<i>Eumorphus andamanensis</i> ,, Gorham ...	180
Solieri	64	<i>Eusthenoius</i> (g. n.), H. W. Bates ...	277
<i>Agestrata</i> Samson (sp. n.), Sharp ...	35	Wallisi (sp. n.), H. W. Bates ...	278
<i>Agriotes sordidus</i>	37	<i>Eutoma cavipenne</i> (sp. n.), " ...	99
<i>Amara alpina</i>	64	<i>Figulus interruptus</i> ,, C. O. Waterhouse ...	7
continua	207	nitens " " ...	7
<i>Aphodius villosus</i>	39	<i>Gymnetron lanuginosum</i> (sp. n.), Wollaston ...	218
<i>Apion opeticum</i>	156	<i>Gymnocerus Badeni</i> (sp. n.), H. W. Bates ...	276
Ryei (sp. n.), Blackburn ...	128	<i>Harpalus latus</i> , var. n., metallescens, Rye ...	84
<i>Apotomus xanthotelus</i> (sp. n.), H. W. Bates ...	95	<i>Heliciform</i> case-making larva, ? Coleopterous ...	239
<i>Aulacothorax exilis</i>	137	<i>Helophorus tuberculatus</i> ...	135, 235
<i>Batriscus sibiricus</i> (sp. n.), Sharp ...	82	<i>Hopatrum Hookeri</i> (sp. n.), Wollaston ...	219
<i>Brachonyx indigena</i>	64	<i>Hoplistocerus dives</i> ,, H. W. Bates..	276
<i>Brachyscapus</i> (?) angolensis (sp. n.), Woll. ...	150	<i>Hydroporus griseostriatus</i> , var. ? from Shetland ...	112
<i>Bryoporus rugipennis</i>	64	<i>Hydroscapha Crotchi</i> (sp. n.), Sharp ...	103
<i>Bythinus Crotchi</i> (sp. n.), Sharp ...	81	<i>Hydroscaphidæ</i>	101
Manueli ,, ,, ...	82	<i>Lagria hirta</i> , Arrested development in ...	279
Ædipus ,, ,, ...	81	<i>Lathridius rugosus</i>	64
<i>Carenidium sapphirinum</i> (sp. n.), H. W. Bates ...	99	<i>Lathrobium angusticolle</i> at Llangollen ...	15
<i>Carenum breviforme</i> (sp. n.) ...	96	<i>Liodes humeralis</i> , var. globosa ...	84
planipenne ,, ...	97	<i>Lomaptera</i> , stridulating organs ...	136
porphyreum ,, ...	95	<i>Lucanus elaphus</i> , deformity ...	32
subplanatum ,, ...	96	<i>Lycoperdina castaneipennis</i> (sp. n.), Gorham ...	151
<i>Cetonia aurata</i> , Late appearance of ...	208	<i>Meligethes</i> , life-history ...	46, 52
<i>Ceuthorhynchus contractus</i> , var. pallipes ...	111	<i>Melyrosoma Blackmorii</i> (sp. n.), Wollaston ...	218
<i>Chalastinus recticornis</i> (sp. n.), H. W. Bates ...	275	<i>Millingenia</i> (g. n.), Sharp ...	124
<i>Chalcoprius</i> (g. n.), H. W. Bates ...	273	fossor (sp. n.), Sharp... ..	125
Badeni (sp. n.), H. W. Bates ...	274	<i>Mitophylus marmoratus</i> (sp. n.), C. O. Waterhouse ...	8
<i>Chrysomela venusta</i> , viviparous ...	135, 156	<i>Monohammus sutor</i> , imported ...	135
<i>Coccinella</i> , ovivorous	85	<i>Nebria crassiceps</i> (sp. n.), H. W. Bates ...	23
<i>Coleoptera</i> from South Morocco ...	213	elliptipennis ,, " ...	22
<i>Compsophilus palpalis</i>	38	Lewisii ,, " ...	22
<i>Corticaria Wollastoni</i>	111	<i>Neocarenum cylindripenne</i> (sp. n.), ,, ...	98
<i>Corynomalus tædifer</i> (sp. n.), Gorham ...	181	retusum ,, " ...	98
<i>Coscinia pictula</i> (sp. n.), H. W. Bates ...	95	<i>Onychocerus ampliatus</i> ,, " ...	277
<i>Cremastochilus crassipes</i> (sp. n.), Westwood ...	55	<i>Oxpoda edniensis</i> , Sharp ...	64
<i>Cryptophagus parallelus</i>	64	rupicola, Rye ...	64
<i>Cyanauges</i> (g. n.), Gorham ...	54	<i>Ozena brevicornis</i> (sp. n.), H. W. Bates ...	24
Gorhami (sp. n.), Lewis ...	55	magna ,, " ...	23
<i>Cymindis Hookeri</i> ,, H. W. Bates ...	217	<i>Pachyteles aspericollis</i> ,, " ...	27
<i>Cyrtotriplax consobrina</i> (sp. n.), Lewis ...	78	fuliginellus ,, " ? ...	28
niponensis ,, " ...	78	fuscus ,, " ...	26
<i>Demelius</i> (g. n.), C. O. Waterhouse ...	127	goniaderus ,, " ...	25
semirugosus (sp. n.), ,, ...	127	peruvianus ,, " ...	26
<i>Demophoo</i> = <i>Hoplistocerus</i>	276	setifer ,, " ...	25
<i>Dorcus binodulosus</i> (sp. n.), C. O. Waterhouse ...	6	sulcipennis ,, " ...	27
		tapajonus ,, " ...	26

	PAGE
<i>Pachytricha</i> , Affinities of	2
<i>castanea</i> , Hope	5
<i>minor</i> (sp. n.), Sharp	5
<i>munda</i> " "	3
<i>pallens</i> " "	4
<i>robusta</i> " "	4
<i>tecta</i> " "	5
<i>Pæderus fuscipes</i> in profusion	38
<i>Paivæa hispida</i> , var.	216
<i>Pentarthrum Sharpianum</i> (sp. n.), Woll. ...	149
<i>Phacellocera plagiata</i> (sp. n.), H. W. Bates	275
<i>Pimelia malleata</i> " " ...	219
<i>Plecoma "Staff"</i>	206
<i>Prismognathus angularis</i> (sp. n.), C. O. Waterhouse	6
<i>Psylliodes luridipennis</i>	112
<i>Rhagium</i> in dead trees	135
<i>Rhizophagus politus</i> in Scotland	64
<i>Rutela sanguinolenta</i> (sp. n.), C. O. Waterhouse	53
<i>Rutelarcha</i> (g. n.), C. O. Waterhouse	52
<i>quadrinaculata</i> (sp. n.), "	53
<i>Scarites atropis</i> (sp. n.), H. W. Bates	178
<i>insculptus</i> " "	179
<i>latesulcatus</i> , " "	177
<i>polypleurus</i> , " "	177
<i>punctuliger</i> , " "	178
<i>Sepidulum bullatum</i> (sp. n.), Sharp	249
, Lec., Affinities of	247
<i>priscus</i> (sp. n.), Sharp	250
<i>trogoides</i> " "	249
<i>Stenus major</i>	38
<i>Tachyporus formosus</i> in Kent	38
<i>Teratidium</i> (g. n.), H. W. Bates	100
<i>macros</i> (sp. n.), "	100
<i>Tetraxis</i> (g. n.), Sharp	79
<i>complex</i> (sp. n.), Sharp	80
<i>Thyamis agilis</i> , Rye	38
<i>Timarcha coriaria</i> , Arrested development in	279
<i>Tolius</i> (g. n.), Sharp	125
<i>æneus</i> (sp. n.), Sharp	126
<i>minor</i> " "	126
<i>Toxicum tricornutum</i> (sp. n.), C. O. Waterhouse	126
<i>Trigonurus Edwardsi</i> (sp. n.), Sharp	205
<i>Lecontus</i> " "	205
<i>rugosus</i> " "	204
<i>Trechus lapidosus</i> in Shetland	112
<i>Trogaster</i> (g. n.), Sharp	83
<i>aberrans</i> (sp. n.), Sharp	83
<i>Typhæus vulgaris</i>	279
<i>Xantholinus lentus</i>	64

DIPTERA.

	PAGE
<i>Anthomyia</i>	223
<i>Anthomyiidae</i> , British	199, 220
<i>Asphondylia ulicis</i> , Traill, redescribed ...	224
<i>Azelia</i>	222
<i>Caricæa</i>	224
<i>Chortophila</i>	223
<i>Drymeia</i>	221
<i>Eryphia</i>	223
<i>Homalomyia</i>	222
<i>Hydrophoria</i>	221
<i>Hydrotæa</i>	221
<i>Hyetodesia</i>	203
<i>Hylemyia</i>	223
<i>Lasiops</i>	221
<i>Limnophora</i>	222
<i>Lispa</i>	223
<i>Mydæa</i>	220
<i>Onodontha</i>	221
<i>Ophyra</i>	222
<i>Polietes</i>	203
<i>Spilogaster</i>	220

(APHANIPTERA).

<i>Sarcopsyllus gallinaceus</i> (sp. n.), Westwood	246
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HEMIPTERA-HETEROPTERA.

<i>Acalypta</i> , Westwood (<i>Orthostira</i> , Fieb.) ...	185
<i>Acanthosoma griseum</i> , On the egg-laying of ...	42
<i>Ælia acuminata</i> , Locality for	208
<i>Allocotus rubidus</i>	146
var. <i>Moncreaffi</i>	147
<i>Aphelocheirus æstivalis</i> , Capture of ...	16, 92, 117
<i>Atractotomus</i> ? <i>obscurillus</i>	234, 235
<i>Berytus minor</i>	184
<i>Signoreti</i> ?	233, 234, 255
Bugs, domestic, Reputed cure for	91
<i>Campylostira verna</i>	233, 235, 255
<i>Ceratocombus coleoptratus</i>	186
<i>Conostethus salinus</i>	185
<i>Coranus subapterus</i> , Mode of stridulation of	137
<i>Cymus melanocephalus</i>	62
<i>Deræocoris fornicatus</i>	117
<i>Drymus pilicornis</i>	184
<i>Eremocoris podagricus</i>	265
<i>Geotomus punctulatus</i>	233, 234
Hemiptera, British, captures on W. coast of Scotland	118
Memoranda for residents and tourists ...	41
Notes on	232, 234

	PAGE
Hemiptera, British, Resemblance to ants among ...	138
Synonymic notes on ...	185
Hypnobi ^{us} vice Hypnophilus ...	185
Lamp ^{ro} plax piceus ...	184
Litosoma bicolor ...	185
Douglasi (sp. n.), Saunders ...	63
Macrocoleus Hardyi ...	185
Nabis ericetorum ...	186
pilosulus ...	186
Notochilus limbatus ...	265
Nysius brunneus ...	233
maculatus, Capture of ...	118
Orthostira macrophthalma and nigrina ...	173,
232, 234	
Pachymerus, name revived ...	185
Peritrechus nubilus ...	267
puncticeps ...	267
Phytocoris marmoratus or tilia ^e ? ...	233, 235, 255
pini ...	144
Piezostethus cursitans ...	185
formicetorum ...	174
Psallus dilutus or alui? ...	234, 235, 255
Rhyparochromus chiragra var. nigricornis ...	267
„ sabulicola ...	266
Salda versus Acanthia ...	186
fucicola ...	143
marginella ...	142
opacula ...	9
palustris (sp. n.), Douglas ...	10
vestita „ „ ...	11
Scolopostethus adjunctus ...	264
affinis ...	263
ericetorum ...	264
Stethotropis incana ...	184
Teratocoris Saundersi ...	185
Tinicephalus obsoletus ...	234, 235, 255
Tytthus insignis ...	185

HEMIPTERA-HOMOPTERA.

Athysanus Verralli (sp. n.), Scott ...	268
Cicada gigas, On the habits of ...	175
Cicadula, Revision of the genus ...	229
frontalis (sp. n.), Scott ...	231
septemnotata ...	231
sexnotata ...	230
variata ...	231
Doratura stylata ...	148
Eupteryx abrotani (sp. n.), Douglas ...	118
Idiocerus Heydeni „ ...	228
Liburnia Putoni (sp. n.), Scott ...	119
Strongylocephalus, Revision of the genus ...	120
agrestis ...	121
Megerlei (sp. n.), Scott ...	122
Typhlocyba, Notes on ...	198

HYMENOPTERA.

	PAGE
Aphilothrix albipunctata ...	110
callidoma ...	110
globuli ...	110
Ceraphron pallipes ...	39
Cladius, British species of ...	253
Cænoneura Dahlbomi ...	103
Cosmocoma fuscipes ...	39
Cynips lignicola, inquilines ...	39
Decatomus biguttatus ...	39
Dineura Degeeri ...	251
fuscula ...	253
parvula ...	252
selandriiformis (sp. n.), Cameron ...	252
stilata ...	251
testaceipes ...	251
verna ...	252
Dryocosmus cerriphilus ...	109
Emphytus lepidus, Kl., Synonymy of ...	255
Eniscia, Thoms., Synonymy of ...	255
Eriocampa testaceipes (sp. n.), Cameron ...	128
Hyperbaeus seminulum ...	39
Mymar taprobanicus (sp. n.), A. O. Ward ...	197
Nematus alnivorus „ Cameron ...	107
histrio ...	65
Perineura viridis, L., Synonymy of ...	255
Phyllotoma tenella, Zadd., Synonymy of ...	255
Pœcilosoma excisum ...	254
guttatum ...	254
submuticum ...	254
Prosacantha brachyptera? ...	39
pedestris ...	39
Selandria grandis ...	65
Strongylogaster femoralis (sp. n.), Cameron ...	250
Taxonus equiseti, var. ...	129
glabratus ...	108
Thoron metallicus ...	39
Trichiosoma, British species of ...	253

LEPIDOPTERA.

Abisara Rutherfordi (sp. n.), Hewitson ...	56
Ablabia pratana ...	29
Acidalia emutaria ...	68
rusticata ...	68
straminata, Larva of ...	116
Acræa Oppidia (sp. n.), Hewitson ...	131
Orestia „ „ ...	131
Oreta „ „ ...	131
Orina „ „ ...	131
Vinidia „ „ ...	130
Acronycta alni ...	158
Adolias Cenespolis (sp. n.), Hewitson ...	183
Agrotis subrosea, Larva of ...	65, 89

	PAGE	xiii. PAGE
<i>Amblypodia japonica</i> (sp. n.), Murray ...	170	<i>Elachista serricornis</i> 85
<i>Anerastia lotella</i> , Larva of	186	<i>Emmelesia unifasciata</i> 140
<i>Aplecta occulta</i> 139,	157	<i>Endopisa nigricana</i> 85
<i>Argynnis Atlantis</i>	245	<i>Ephestia elutella</i> 269
<i>Chariclea</i>	245	<i>ficella</i> 270
<i>Freja</i>	245	<i>ficulella</i> (sp. n.), Barrett ... 271
<i>pallescens</i>	170	<i>passulella</i> „ „ ... 271
<i>Argyridia dipoltella</i>	196	<i>semirufa</i> 270
<i>Argyrolepis aneana</i>	132	<i>Erastria fuscula</i> , Larva of... .. 66
<i>badiana</i>	134	<i>Eresia Coela</i> (sp. n.), Druce ... 37
<i>Baumanniana</i>	133	<i>Eutropia</i> „ <i>Hewitson</i> ... 56
<i>cnicana</i>	134	<i>Ergolis Actisanes</i> 183
<i>dubrisana</i>	134	<i>Eriopsela fractifasciana</i> 132
<i>maritimana</i>	134	<i>quadrana</i> 132
<i>Mussehliana</i>	133	<i>Eubolia lineolata</i> 16
<i>Schreibersiana</i>	132	<i>Euchromia Branderiana</i> 30
<i>subbaumanniana</i>	133	<i>ericetana</i> 30
<i>Asthena Blomeraria</i> , Larva of	87	<i>fulvipunctana</i> 29
<i>Boarmia roboraria</i> , Larva of	40	<i>purpurana</i> 29
<i>Bombyx rubi</i>	188	<i>rufana</i> 30
<i>Botys nubilalis</i> (<i>lupulinalis</i>)	256	<i>Eucyane egaensis</i> (sp. n.), Butler... 77
<i>Calliodes rubropicta</i> (sp. n.), Butler ... 77		<i>Eudorea coarctalis</i> 19
<i>Calosetia nigromaculana</i>	134	<i>Eupithecia expallidata</i> 16
<i>Carpocapsa funebrana</i>	13	<i>Eupeçilia albicapitana</i> 152
<i>grossana</i>	13	<i>ambiguella</i> 153
<i>juliana</i>	13	<i>angustana</i> 154
<i>nimbana</i>	12	<i>anthemidana</i> 194
<i>pomonella</i>	13	<i>atricapitana</i> 152
<i>Catoptria aspidiscana</i>	19	<i>carduana</i> 153
<i>Cemiostoma Wailesella</i>	238	<i>curvistrigana</i> 154
<i>Charaxes Ephyra</i>	57	<i>Degreyana</i> 195
<i>Chionobas Taygete</i>	245	<i>dubitana</i> 152
<i>Chrosis Audouinana</i>	132	<i>flaviciliana</i> 194
<i>tesserana</i>	132	<i>Geyeriana</i> 191
<i>Chrysophanus Timeus</i>	167	<i>griseana</i> 155
<i>Cnephasia cinctana</i>	28	<i>Heydeniana</i> 194
<i>hybridana</i>	28	<i>maculosana</i> 152
<i>Ctenonympha inornata</i>	245	<i>Manniana</i> 192
<i>Colias Hyale</i>	166	<i>nana</i> 153
<i>Coriscium Brongniardellum</i>	117	<i>notulana</i> 154
<i>Cosmopteryx Scribaeiella</i> bred	18	<i>ruficiliana</i> 195
<i>Crambus verellus</i>	117	<i>rupicola</i> 193
<i>Crymodes exulis</i>	85	<i>sodaliana</i> 153
<i>Daimio Tethys</i>	171	<i>subroseana</i> 194
<i>Danaus exprompta</i> (sp. n.), Butler ... 163		<i>udana</i> 155, 191
<i>leucoptera</i> „ „	163	<i>Vectisana</i> 193
<i>microsticta</i> „ „	163	<i>Gonopteryx rhamni</i> , Hermaphrodite ... 113
<i>septentrionis</i> „ „	163	<i>Grapholita citrana</i> 15
<i>vulgaris</i> „ „	164	<i>grandaevana</i> 211
<i>Deilephila euphorbiae</i> , Larva of	73	<i>microgrammana</i> 14
<i>Deiopeia pulchella</i> 157,	210	<i>ulicetana</i> 13
<i>Depressaria Yeatiana</i> bred	167	<i>Wimmerana</i> 14
<i>Deudorix Simsoni</i> (sp. n.), Miskin ... 165		<i>Hæteropsis Drepana</i> (sp. n.), Hewitson 227
<i>Dianthœcia albimacula</i> , Larva of... ..	16	<i>Halonota grandaevana</i> 85, 211
<i>Diphthera Orion</i>	159	
<i>Dipsas Attilia</i>	168	
<i>japonica</i> (sp. n.), Murray... ..	169	
<i>orientalis</i> „ „	169	

	PAGE		PAGE
Harma Amenides (sp. n.), Hewitson	56	Panopea protracta (sp. n.), Butler	164
Heliconia Gynæsia " " ...	182	Papilio Alcinous	166
Longarena " " ...	182	" Antimachus	16, 113
Heliothis dipsacea, Larva of ...	256	" brevicauda	244
Iolaus Cytæis (sp. n.), Hewitson	182	" Dehaani	166
Larentia olivata, Larva of ...	86	" Lormieri (sp. n.), Distant	129
Laverna epilobiella	238	" Mangoura " Hewitson	226
Lemiodes pulveralis	117	" Sadyattes " Druce ...	36
Libythea Lepita	170	" Sarpedon	166
Liphyra Vininga (sp. n.), Hewitson	183	" Turnus	244, 258
Lithocolletis viminiella	238	Parnassius glacialis	166
Lobesia reliquana	62, 90	Phtheochroa rugosana	132
Lozopera alternana	196	Phycis Davisellus	211
dilucidana	196	Pieris oleracea	244
Francillana	196	Pseudacraea Boisduvalii ...	57
Smeathmanniana	196	" striata	57
straminea	196	" Trimeni (sp. n.), Butler	57
Lycæna Adonis, Larva of	113	Pseudodipsas innotatus (sp. n.), Miskin	165
Aquilo	246	Pterophorus rhododactylus ...	69
Argia	167	Pyrameis cardui	245
Couperi	254	Pyrausta punicealis, Larva of	66
japonica (sp. n.), Murray	168	Rhomaleosoma sarcoptera ...	57
Ladonides	168	Satsuma ferrea	168
Lucia	246	Sericoris alternana	59
Lycormas	168	" bifasciana	62
Lyrnessa (sp. n.), Hewitson	107	" cespitana	61
Pryeri	168	" conchana	30
Scudderi	245	" Doubledayana	61
Lygris reticulata	139	" euphorbiana	61
Melanitis Masoura (sp. n.), Hewitson	227	" fuligana	61
Melissoblaptes cephalonica ...	272	" herbana	31
Mesosemia Ceropia (sp. n.), Druce	37	" irriguana	59
'Micros,' European, away from home	279	" lacunana	30
Mixodia Schulziana	62	" latifasciana	62
Morpho Godarti	65	" littoralis	61
Myelois cirrigerella	237	" micana	59
Neptis aceris	170	" politana	61
Nephopteryx genistellus	211	" rupestrana	31
Noctua festiva	139	Smerinthus ocellatus	116, 157
" rubi, Larva of	210	" populi	116, 157
" sobrina	89, 116	Sphaleroptera ictericana	15
" subrosea, Larva of	65, 89	Sterrhia sacraria	158
Nola albulalis	68	Syrichthus alveolus, Larva of	236
" cristulalis	19	Terias Brenda	167
Nonagria brevilinea	211	" leta	166
Opostega salaciella	85	Thecla Chonida (sp. n.), Hewitson	105
Opsiphanes Bogotanus (sp. n.), Distant	203	" Critola " "	105
Orthotænia antiquana	30	" Cyphara " "	106
Pachnobia alpina	89	" Cyrriana " "	105
Pamphila Dara	171	" Mathewi " "	106
" pellucida (sp. n.), Murray	172	" quadrimaculata " "	106
" varia " "	172		
" vitrea " "	171		

	PAGE
<i>Thecla Sedecia</i> (sp. n.), Hewitson	105
<i>Tischeria angusticollella</i>	238
<i>dodonæa</i>	238
<i>Vanessa Antiopa</i>	245
<i>comma</i>	245
<i>Glaucoma</i>	170
<i>Milberti</i>	245
<i>Xylophasia lithoxylea</i> , Larva of ...	208
<i>polyodon</i> " " ...	208

NEUROPTERA (<i>in the Linnean sense</i>).	
	PAGE
<i>Ænallagma boreale</i> (sp. n.), Selys	242
<i>Æschna clepsydra</i>	242
<i>hudsonica</i> (sp. n.), Selys ..	242
<i>Calotermes</i> sp. ?, bred at Kew	15
<i>Chrysopa</i> , Odours of	
<i>tenella</i> at Weybridge	65
<i>Cordulia Shurtleffi</i>	241
<i>Epithea cingulata</i>	241
<i>forcipata</i>	241
<i>Helicopsyche</i> cases from Sikkim	239
<i>Leucorrhinia hudsonica</i>	241

INDEX TO CONTRIBUTORS.

	PAGE
Barrett, C. G.	12, 28, 59, 132, 152, 191, 256, 269
Bates, H. W., F.L.S.	22, 95, 177, 217, 244, 273
Berg, Carl	67
Blackall, W.	210
Blackburn, J. B.	116, 139, 157
Blackburn, Rev. T., B.A.	112, 128, 135
Blackmore, T.	213
Bleuze, L.	235
Briggs, C. A.	157
Brown, Rev. J. Landy, M.A.	92, 117
Buckler, W.	16, 73, 186, 188, 208, 256
Butler, A. G., F.L.S.	57, 77, 163
Cameron, P., Jun.	65, 107, 128, 250
Carrington, J. T.	89, 158
Chambers, V. T.	279
Champion, G. C.	63, 64
Chappell, J.	15
Cooke, N.	85
Distant, W. L.	129, 203
Doubleday, H.	89, 90, 211
Douglas, J. W.	1, 9, 41, 90, 118, 137, 138, 142, 144, 173, 184, 198, 234, 263
Druce, H., F.L.S.	36
Fitch, E. A.	109
Fletcher, J. E.	85, 238
Forbes, W. A.	208, 279
Gardner, J.	85, 135
Gorham, Rev. H. S.	54, 151, 180
Goss, H.	113
Hellins, Rev. J., M.A.	16, 40, 42, 68, 86, 113, 236
Hewitson, W. C., F.L.S.	16, 36, 56, 65, 104, 118, 130, 182, 228
Hodgkinson, J. B.	19

	PAGE
Jones, A. H.	139
Knaggs, H. G., M.D., F.L.S.	1
Knaggs, H. V.	117
Lewis, G.	54, 78
Llewelyn, J. T. D., M.A., F.L.S.	158
Lockyer, B.	158
McLachlan, R., F.L.S.	15, 65, 92, 138, 159, 239
Mathew, G. F., R.N., F.L.S.	175
Meade, R. H.	199, 220
Meyrick, E.	237
Miskin, W. H.	165
Murray, Rev. R. P., M.A.	166
Norman, G.	258
Ormerod, Eleanor A.	46
Porritt, G. T., F.L.S.	68, 116, 157, 210
Rye, E. C., F.Z.S.	84, 135, 158, 207
Saunders, E., F.L.S.	62, 232, 255
Scott, J.	117, 119, 120, 144, 147, 173, 184, 228, 229, 235, 268
Selys-Longchamps, Baron E. de	241
Sharp, D., M.B.	2, 35, 79, 101, 123, 136, 137, 204, 206, 247
Smith, F.	111
Stainton, H. T., F.R.S.	18, 157
Ulyett, H.	210
Verrall, G. H.	224
Walker, J. J.	37
Ward, A. O.	39, 197, 279
Waterhouse, C. O.	6, 39, 52, 126, 127
Weston, W. P.	117
Westwood, J. O., M.A., F.L.S.	16, 32, 55, 246
Wilkinson, T.	235
Wollaston, T. V., M.A., F.L.S.	149, 218

LIST OF NEW GENERA AND SPECIES, &c., DESCRIBED IN THIS VOLUME.

COLEOPTERA.

GENERA.	PAGE		PAGE
CHALCOPRIONUS, <i>H. W. Bates</i>	273	<i>Figulus interruptus</i> , <i>C. O. Waterhouse</i> ,	
CYANAUGES, <i>Gorham</i>	54	<i>nitens</i> , <i>" N. S. Wales</i> ..	7
DEMELIUS, <i>C. O. Waterhouse</i>	127	<i>Gymnetron lanuginosum</i> , <i>Wollaston</i> , <i>Atlas</i> ..	218
EUSTHENOMUS, <i>H. W. Bates</i>	277	<i>Gymnocerus Badeni</i> , <i>H. W. Bates</i> ,	
MILLINGENIA, <i>Sharp</i>	124	<i>N. Granada</i> ..	276
RUTELARCHA, <i>C. O. Waterhouse</i>	52	<i>Hopatrum Hookeri</i> , <i>Wollaston</i> , <i>Atlas</i> ..	219
TERATIDIUM, <i>H. W. Bates</i>	100	<i>Hoplistocerus dives</i> , <i>H. W. Bates</i> , <i>Bahia</i> ..	276
TETRACIS, <i>Sharp</i>	79	<i>Hydroscapha Crotchii</i> , <i>Sharp</i> , <i>Spain</i>	103
TOLISUS, <i>"</i>	125	<i>Lycoperdina castaneipennis</i> , <i>Gorham</i> ,	
TROGASTER, <i>"</i>	83	<i>Japan</i> ..	151
SPECIES.		<i>Melyrosoma Blackmorii</i> , <i>Wollaston</i> ,	
<i>Agestrata Samson</i> , <i>Sharp</i> , <i>Silhet</i>	35	<i>Mogador</i> ..	218
<i>Apion Ryci</i> , <i>Blackburn</i> , <i>Shetland</i>	128	<i>Millingenia fossor</i> , <i>Sharp</i> , <i>Egypt</i>	125
<i>Apotomus xanthotelus</i> , <i>H. W. Bates</i> ,		<i>Mitophyllus marmoratus</i> , <i>C. O. Water-</i>	
<i>Celebes</i> ..	95	<i>house</i> , <i>New Zealand</i> ..	8
<i>Batriscus sibiricus</i> , <i>Sharp</i> , <i>Siberia</i>	82	<i>Nebria crassiceps</i> , <i>H. W. Bates</i> , <i>Kurdistan</i> ..	23
<i>Brachyscapus</i> (?) <i>angolensis</i> , <i>Wollaston</i> ,		<i>elliptipennis</i> , <i>"</i> <i>"</i> ..	22
<i>Angola</i> ..	150	<i>Lewis</i> , <i>"</i> <i>Japan</i> ..	22
<i>Bythinus Crotchii</i> , <i>Sharp</i> , <i>Reynosa</i>	81	<i>Neocarenum cylindripenne</i> , <i>H. W. Bates</i> ,	
<i>Manueli</i> , <i>"</i> <i>Savoy</i>	82	<i>Australia</i> ..	98
<i>Edipus</i> , <i>"</i> <i>Reynosa</i>	81	<i>retusum</i> , <i>H. W. Bates</i> , <i>"</i> ..	98
<i>Carenidium sapphirinum</i> , <i>H. W. Bates</i> ,		<i>Onychocerus ampliatus</i> , <i>H. W. Bates</i> ,	
<i>W. Australia</i> ..	99	<i>Peru</i> , <i>Equador</i> ..	277
<i>Carenum breviforme</i> , <i>H. W. Bates</i> ,		<i>Ozæna brevicornis</i> , <i>"</i> <i>Peru</i>	23
<i>W. Australia</i> ..	96	<i>magna</i> , <i>"</i> <i>Amazons</i> ..	23
<i>planipenne</i> , <i>"</i> <i>"</i> ..	97	<i>Pachyteles aspericollis</i> , <i>"</i> <i>"</i> ..	27
<i>porphyreum</i> , <i>"</i> <i>"</i> ..	95	<i>fuliginellus</i> , <i>"</i> <i>Nicaragua</i> ..	28
<i>subplanatum</i> , <i>"</i> <i>"</i> ..	96	<i>fuscus</i> , <i>"</i> <i>Ega</i>	26
<i>Chalastinus recticornis</i> , <i>H. W. Bates</i> ,		<i>goniaderus</i> , <i>"</i> <i>"</i>	25
<i>Santarem</i> ..	275	<i>peruvianus</i> , <i>"</i> <i>Peru</i>	28
<i>Chalcoprionus Badeni</i> , <i>H. W. Bates</i> ,		<i>setifer</i> , <i>"</i> <i>Equador</i> ..	25
<i>N. Granada</i> ..	274	<i>sulcipennis</i> , <i>"</i> <i>Ega</i>	27
<i>Corynomalus tædifer</i> , <i>Gorham</i> , <i>Peru</i>	181	<i>tapajonus</i> , <i>"</i> <i>Amazons</i> ..	26
<i>Coscinia pictula</i> , <i>H. W. Bates</i> , <i>Mesopo-</i>		<i>Pachytricha minor</i> , <i>Sharp</i> , <i>Australia</i> ..	5
<i>tamia</i> ..	95	<i>munda</i> , <i>"</i> <i>"</i>	3
<i>Cremastochilus crassipes</i> , <i>Westwood</i> ,		<i>pallens</i> , <i>"</i> <i>"</i>	4
<i>California</i> ..	55	<i>robusta</i> , <i>"</i> <i>"</i>	4
<i>Cyanauges Gorhami</i> , <i>G. Lewis</i> , <i>Japan</i> ..	55	<i>tecta</i> , <i>"</i> <i>"</i>	5
<i>Cymindis Hookeri</i> , <i>H. W. Bates</i> , <i>Atlas</i> ..	217	<i>Pentarthrum Sharpianum</i> , <i>Wollaston</i> ,	
<i>Cyrtotriplax consobrina</i> , <i>G. Lewis</i> , <i>Japan</i> ..	78	<i>New Zealand</i> ..	149
<i>niponensis</i> , <i>"</i> <i>Irkutsk</i> ..	78	<i>Phacellocera plagiata</i> , <i>H. W. Bates</i> ,	
<i>Demelius semirugosus</i> , <i>C. O. Waterhouse</i> ,		<i>Yurimaguas</i> ..	275
<i>Queensland</i> ..	127	<i>Pinnelia malleata</i> , <i>Wollaston</i> , <i>Atlas</i>	219
<i>Dorcus binodulosus</i> , <i>C. O. Waterhouse</i> ,		<i>Prismognathus angularis</i> , <i>C. O. Water-</i>	
<i>Japan</i> ..	6	<i>house</i> , <i>Japan</i> ..	6
<i>Episcapha taishoensis</i> , <i>G. Lewis</i> , <i>Chiosan</i> ..	79	<i>Pselaphus Saulcyi</i> , <i>Sharp</i> , <i>Reynosa</i>	80
<i>Eumorphus andamanensis</i> , <i>Gorham</i> ,		<i>Rutela sanguinolenta</i> , <i>C. O. Waterhouse</i> ,	
<i>Andaman I.</i> ..	180	<i>New Granada</i> ..	53
<i>Eusthenomus Wallisi</i> , <i>H. W. Bates</i> ,		<i>Rutelarcha quadrimaculata</i> , <i>Sharp</i> ,	
<i>N. Granada</i> ..	278	<i>Penang?</i> ..	53
<i>Eutomia cavipenne</i> , <i>H. W. Bates</i> ,		<i>Scarites atropis</i> , <i>H. W. Bates</i> , <i>Caffraria</i> ..	178
<i>W. Australia</i> ..	99	<i>insculptus</i> , <i>"</i> <i>Bahia</i> ..	179
		<i>latesulcatus</i> , <i>"</i> <i>Caffraria</i> ..	177
		<i>polypleurus</i> , <i>"</i> <i>"</i> ..	177
		<i>punctuliger</i> , <i>"</i> <i>S. Africa</i> ..	178

<i>Sepidulum bullatum</i> , <i>Sharp</i> , <i>India</i>	PAGE
<i>priseus</i> [-cum] ,, <i>Queensland</i>	249
<i>trogoides</i> , ,, ? <i>S. America</i>	249
<i>Teratidium macros</i> , <i>H. W. Bates</i> , <i>Nicol Bay</i>	100
<i>Tetracis complex</i> , <i>Sharp</i> , <i>Tangiers</i>	80
<i>Tolisus æneus</i> , ,, <i>Jeddah</i>	126
<i>minor</i> , ,, <i>Ajmere</i>	126
<i>Toxicum tricornutum</i> , <i>C. O. Waterhouse</i> , <i>Japan</i>	126
<i>Trigonurus Edwardsi</i> , <i>Sharp</i> , <i>California</i>	205
<i>Lecontus</i> , ,, "	205
<i>rugosus</i> , ,, "	204
<i>Trogaster aberrans</i> , ,, <i>Corsica</i> ...	83
<i>Harpalus latus</i> , var. n. <i>metallescens</i> , <i>Rye</i> , <i>England</i>	84

DIPTERA (APHANIPTERA).

<i>Sarcopsyllus gallinaceus</i> , <i>Westwood</i> , <i>Ceylon</i>	240
---	-----

HEMIPTERA-HETEROPTERA.

<i>Litosoma Douglasi</i> , <i>E. Saunders</i> , <i>England</i>	63
<i>Salda palustris</i> , <i>Douglas</i> , <i>England</i>	10
<i>vestita</i> , ,, "	11
<i>Rhyparochromus chiragra</i> , <i>F.</i> , var. n. <i>nicornis</i> , <i>Douglas</i> , <i>England</i>	267

HEMIPTERA-HOMOPTERA.

<i>Athymanus Verralli</i> , <i>Scott</i> , <i>England</i>	268
<i>Cicadula frontalis</i> , ,, "	231
<i>Eupteryx abrotani</i> , <i>Douglas</i> , ,,	118
<i>Liburnia Putoni</i> , <i>Scott</i> , <i>Algeria</i>	119
<i>Strongylocephalus Megerlei</i> , <i>Scott</i> , <i>England</i>	122

HYMENOPTERA.

<i>Dineura selandriiformis</i> , <i>Cameron</i> , <i>England</i>	252
<i>Eriocampa testaceipes</i> , ,, <i>Scotland</i>	128
<i>Mymar taprobanicus</i> , <i>A. O. Ward</i> , <i>Ceylon</i>	197
<i>Nematus alnivorus</i> , <i>Cameron</i> , <i>Scotland</i>	107
<i>Strongylogaster femoralis</i> , ,, "	250

LEPIDOPTERA.

GENERA.

<i>DAIMIO</i> , <i>R. P. Murray</i>	171
<i>SATSUMA</i> , ,,	168

SPECIES.

<i>Abisara Rutherfordi</i> , <i>Hewitson</i> , <i>W. Africa</i>	56
<i>Acræa Oppidia</i> , <i>Hewitson</i> , <i>Fernando Po.</i>	131
<i>Orestia</i> , ,, "	131
<i>Oreta</i> , ,, "	131
<i>Orina</i> , ,, "	130
<i>Vinidia</i> , ,, <i>Angola</i>	130

<i>Adolias Cenespolis</i> , <i>Hewitson</i> , <i>Borneo</i> ...	183
<i>Amblypodia japonica</i> , <i>R. P. Murray</i> , <i>Japan</i>	170
<i>Calliodes rubropicta</i> , <i>Butler</i> , <i>Moreton Bay</i>	77
<i>Danaïdæ exprompta</i> , ,, <i>Ceylon</i>	164
<i>leucoptera</i> , ,, <i>Dorey</i>	163
<i>microsticta</i> , ,, <i>Borneo</i>	163
<i>septentrionis</i> , ,, <i>India</i>	163
<i>vulgaris</i> , ,, <i>Nepal</i>	164
<i>Deudorix Simsoni</i> , <i>Miskin</i> , <i>Queensland</i>	165
<i>Dipsas japonica</i> , <i>R. P. Murray</i> , <i>Japan</i> ...	169
<i>orientalis</i> , ,, "	169
<i>Ephestia ficulella</i> , <i>Barrett</i> , <i>England</i>	271
<i>passulella</i> , ,, "	271
<i>Eresia Coela</i> , <i>Druce</i> , <i>Costa Rica</i>	37
<i>Eutropia</i> , <i>Hewitson</i> , <i>Panama</i>	56
<i>Ergolis Actisanes</i> , ,, <i>Gaboon</i>	183
<i>Eucyane egaensis</i> , <i>Butler</i> , <i>Ega</i>	77
<i>Hæteropsis Drepana</i> , <i>Hewitson</i> , <i>Madagascar</i>	227
<i>Harma Amenides</i> , ,, <i>Gaboon</i>	56
<i>Heliconia Gynæsia</i> , ,, <i>locality unknown</i>	182
<i>Longarena</i> , ,, <i>New Granada</i>	182
<i>Iolaus Cytæis</i> , ,, <i>Fernando Po</i>	182
<i>Liphyra Vininga</i> , ,, "	183
<i>Liptena Adelgitha</i> , ,, <i>Gaboon</i>	36
<i>Lycæna japonica</i> , <i>R. P. Murray</i> , <i>Japan</i>	167
<i>Lyrnessa</i> , <i>Hewitson</i> , <i>Chili</i>	107
<i>Lycænesthes Lyzanius</i> , ,, <i>Old Calabar</i>	36
<i>Melanitis Masoura</i> , ,, <i>Madagascar</i>	227
<i>Mesosemia Ceropia</i> , <i>Druce</i> , <i>Costa Rica</i>	37
<i>Opsiphanes bogotanus</i> , <i>Distant</i> , <i>Bogotá</i>	203
<i>Pamphila pellucida</i> , <i>R. P. Murray</i> , <i>Japan</i>	172
<i>varia</i> , ,, "	172
<i>vitrea</i> , ,, "	171
<i>Panopea protracta</i> , <i>Butler</i> , <i>Cabinda</i>	164
<i>Papilio Lormieri</i> , <i>Distant</i> , <i>Madagascar</i>	129
<i>Mangoura</i> , <i>Hewitson</i> , ,,	226
<i>Sadyattes</i> , <i>Druce</i> , <i>Costa Rica</i>	36
<i>Pseudacræa Trimeni</i> , <i>Butler</i> , <i>Natal</i>	57
<i>Pseudodipsas innotatus</i> , <i>Miskin</i> , <i>Queensland</i>	165
<i>Thecla Chonida</i> , <i>Hewitson</i> , <i>Mexico</i>	105
<i>Critola</i> , ,, "	105
<i>Cyphara</i> , ,, <i>Panama</i>	106
<i>Cyrriana</i> , ,, <i>Peru</i>	105
<i>Mathewi</i> , ,, <i>Mexico</i>	106
<i>quadrinaculata</i> , ,, <i>Chili</i>	106
<i>Sedecia</i> , ,, <i>Mexico</i>	105

NEUROPTERA.

<i>Ænallagma boreale</i> , <i>Selys</i> , <i>Newfoundland</i>	242
<i>Æschna hudsonica</i> , ,, "	242

ADDITIONS TO THE BRITISH INSECT FAUNA BROUGHT FORWARD IN THIS VOLUME.

COLEOPTERA.

	PAGE
<i>Abdera triguttata</i> , <i>Gyll.</i>	63
<i>Amara continua</i> , <i>Thoms.</i>	207
<i>Apion opeticum</i> , <i>Bach</i>	156
<i>Ryei</i> (sp. n.), <i>Blackburn</i>	128
<i>Harpalus latus</i> , var. n. <i>metallescens</i> , <i>Rye</i> ..	84
<i>Helophorus tuberculatus</i> , <i>Gyll.</i>	135, 235

HEMIPTERA-HETEROPTERA.

GENUS.

<i>ALLOCOTUS</i> , <i>Puton</i>	146
---------------------------------------	-----

SPECIES.

<i>Allocotus rubidus</i> , <i>Puton</i>	146
<i>Cymus melanocephalus</i> , <i>Fieb.</i>	62
<i>Litosoma Douglasi</i> (sp. n.), <i>Saunders</i>	63
<i>Orthostira macrophthalma</i> , <i>Fieb.</i>	173
<i>Peritrechus nubilus</i> , <i>Fall.</i> , <i>Thoms.</i>	266
<i>Phytocoris pini</i> , <i>Kirschb.</i>	144
<i>Piezostethus fornicetorum</i> , <i>Boh.</i>	174
<i>Rhyparochromus chiragra</i> , F., var. n. <i>nigricornis</i> , <i>Douglas</i> ..	267
<i>sabulicola</i> , <i>Thoms.</i>	265
<i>Salda fucicola</i> , <i>J. Sahlb.</i>	143
<i>marginella</i> , <i>Fieb.</i>	142
<i>opacula</i> , <i>Zett.</i>	9
<i>palustris</i> (sp. n.), <i>Douglas</i>	10
<i>vestita</i> (sp. n.), "	11
<i>Scolopostethus ericetorum</i> , <i>Leth.</i>	264

HEMIPTERA-HOMOPTERA.

	PAGE
<i>Athysanus Verralli</i> (sp. n.), <i>Scott</i>	268
<i>Cicadula frontalis</i> " "	231
<i>Eupteryx abrotani</i> " <i>Douglas</i>	118
<i>Idiocerus Heydeni</i> , <i>Kirschb.</i>	228
<i>Strongylocephalus Megerlei</i> (sp. n.), <i>Scott</i> ..	122

HYMENOPTERA.

<i>Aphilothrix albipunctata</i> , <i>Schl.</i>	110
<i>callidoma</i> , <i>Htg.</i>	110
<i>Ceraphron pallipes</i>	39
<i>Dineura selandriiformis</i> (sp. n.), <i>Cameron</i> ..	252
<i>stilata</i> , <i>Klug</i>	65, 251
<i>testaceipes</i> , <i>Klug</i>	251
<i>Dryocomus cerriphilus</i> , <i>Gir.</i>	109
<i>Eriocampa testaceipes</i> (sp. n.), <i>Cameron</i> ..	128
<i>Nematus alnivorus</i> , sp. n. (<i>Htg.</i>), <i>Cameron</i> ..	107
<i>histrion</i> , <i>Lep.</i>	65
<i>Pœcilosoma excisum</i> , <i>Thoms.</i>	254
<i>guttatum</i> , <i>Fall.</i>	254
<i>submuticum</i> , <i>Thoms.</i>	254
<i>Selandria grandis</i> , <i>Zadd.</i>	65
<i>Strongylogaster femoralis</i> (sp. n.), <i>Cameron</i> ..	250

LEPIDOPTERA.

<i>Ephestia ficulella</i> (sp. n.), <i>Barrett</i>	271
" <i>passulella</i> " "	271
<i>Myelois cirrigerella</i> , <i>Zk.</i>	237

LARVÆ OF BRITISH SPECIES DESCRIBED IN THIS VOLUME.

LEPIDOPTERA.

	PAGE
<i>Acidalia straminata</i> , <i>G. T. Porritt</i> -	116
<i>Agrotis subrosea</i> , <i>Berg (transl.)</i> -	67
" " <i>H. Doubleday</i> -	89
<i>Anerastia lotella</i> , <i>W. Buckler</i> -	186
<i>Asthena Blomeraria</i> , <i>Rev. J. Hellins</i> -	88
<i>Boarmia roboraria</i> , " -	40
<i>Deilephila euphorbiæ</i> , <i>W. Buckler</i> -	73
<i>Dianthœcia albinacula</i> " -	17
<i>Erastris fuscata</i> , <i>Rev. J. Hellins</i> -	66
<i>Heliopsis dipsacea</i> , <i>W. Buckler</i> -	256
<i>Larentia olivata</i> , <i>Rev. J. Hellins</i> -	86
<i>Lycena Adonis</i> , " -	113
<i>Noctua rubi</i> , <i>G. T. Porritt</i> -	210
<i>Pyrasta punicealis</i> , <i>Rev. J. Hellins</i> -	66
<i>Syrichthus alveolus</i> , " -	237
<i>Xylophasia lithoxylea</i> , <i>W. Buckler</i> -	209
" <i>polyodon</i> , " -	209

REVIEWS.

	PAGE
"Fauna and Flora of Norfolk, part v, Lepidoptera."—C. G. Barrett	43
"Insects Abroad."—Rev. J. G. Wood	159
"Nomenclator Zoologicus."—Count Aug. von Marschall	44
"On the Transformations of the common House-fly."—A. S. Packard, Jun., M.D.	93
"Psyche:" edited by B. P. Mann	44
Supplement to "Harvesting-Ants and Trap-Door Spiders."—J. T. Moggridge, F.L.S.	189
"The Butterflies of N. America."—W. H. Edwards	70
"The Micrographic Dictionary"	211

OBITUARY.

Bold, T. J.	20
Crotch, G. R., M.A.	70
Dorville, H.	160
Gray, Dr. J. E., F.R.S., &c.	262
Herrich-Schäffer, Dr.	20
Keeley, R. G.	70
Lello, W.	141
Moggridge, J. T., F.L.S., F.Z.S.	187
Walker, F.	140
Zetterstedt, Prof. J. W.	211

WOOD-CUTS.

Lucanus elaphus, deformity	34
Meligethes: eggs, &c.	50
larva	51

ERRATA.

Page 167, line 23 from top, for "Above these" read "Above, there."
" " " 30 " " " "♀" read "♂."
" 168, " 17 " " " "postice" read "posticæ."
" 175, " 6 " " " "Tobago" read "Taboga."
" 206, " 7 " " " "least" read "best."
" " " 3 " bottom, for "adjurans" read "adjuvans."
" 207, lines 2 and 16 from top, for "adjurans" read "adjuvans."
" 251, line 18 from top, for "hemichroa" read "Hemichroa."



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"There's nothing, situate under heaven's eye, but hath its bound."

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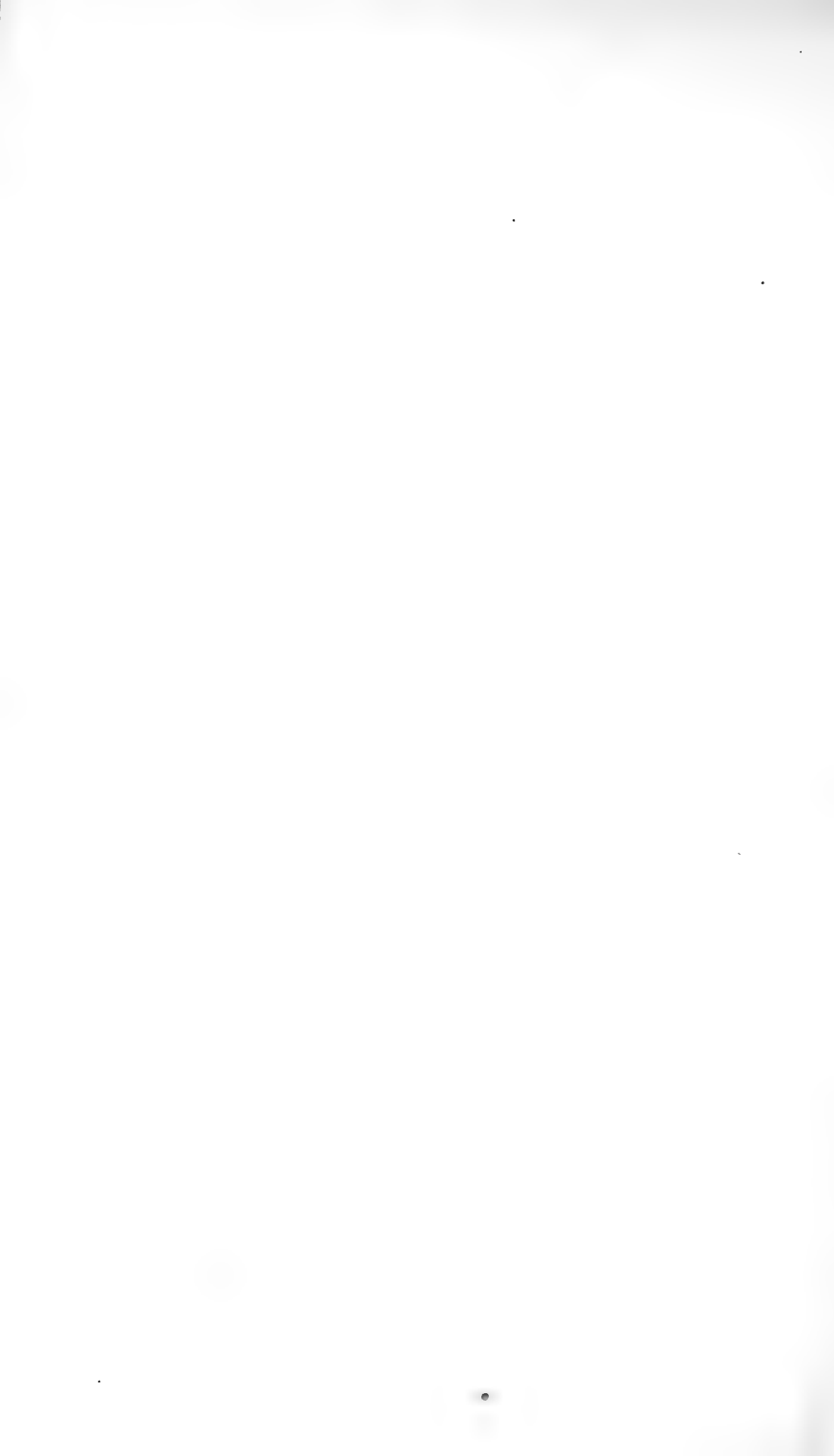
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MDCCCLXXVI.



	iii.	PAGE
Coleoptera in the Manchester district, Captures of	62	
„ „, Notes on British, with descriptions of three new species ...	175	
„ „, On the, of Kerguelen's Island	54	
Colias Edusa in Devonshire	215	
Collecting and rearing, On, the Psychidæ	112	
Colorado Potato-beetle, The	40, 215	
Comptoschilus palpalis at Caterham	39	
Corixa, Notes on some species of	137	
Crambus latistrius at Addington, Capture of	114	
Cryptophagus populi, Note on an unrecorded habit of	107	
Cycles of Entomology, The	89	
Cymatophora ridens, On the egg of	232	
Deilephila livornica in Glamorgan	44	
Description of a new species of Chiasognathus	174	
„ „ „ „ „ „ Longicorn Coleoptera from New Zealand ...	57	
„ „ „ „ „ „ Myrina from W. Africa	106	
„ „ „ „ „ „ Nematus from Corsica	9	
„ „ additional species to the list of British Hemiptera...	131, 154, 186, 249	
„ „ the larva, &c., of Agrotæa nemoralis	232	
„ „ „ „ of Botys lancealis	277	
„ „ „ „ „ „ terrealis	209	
„ „ „ „ „ „ &c., of Cleora glabraria	84	
„ „ „ „ „ „ Pterophorus dichrodactylus...	233	
„ „ „ „ „ „ „ microdactylus	234	
„ „ „ „ „ „ „ rhododactylus	88	
„ „ „ „ „ „ &c., of Rhodophæa suavella...	13	
„ „ „ „ „ „ of Xylomyges conspicillaris	83	
„ „ three new Butterflies	9	
„ „ two new exotic Aculeate Hymenoptera, of the families Thyn- nidæ and Crabronidæ...	185	
Descriptions of five new, or little known, species of British Tenthredinidæ...	189	
„ „ „ „ species of European Hemiptera-Heteroptera ...	221	
„ „ four new South American Hesperiidæ	250	
„ „ hitherto uncharacterized species of Phytophaga	73	
„ „ the larva and pupa of Aplecta occulta	66	
„ „ three new species of Diurnal Lepidoptera from Central America	126	
„ „ „ „ „ „ Lyænidæ	38	
„ „ „ „ „ „ Tenthredinidæ from Scotland	127	
„ „ two new British Ichneumonidæ	194	
„ „ „ „ species of Lucanidæ	172	
Diagnoses breves Dipt. uniusque Lepidopt. Insulæ Kerguelensi indigen. ...	58	
Dianthæcia albimacula, Sphinx convolvuli and, at Folkestone	157	
Dieranoneura citrinella, Note on the habitat of	187	
Discovery, Probable, of the imago of Helicopsyche in Europe	15	
Diurnal Lepidoptera from Central America, Descriptions of three new species of	126	
Does Polia flavocincta ever hibernate in the imago state?	258	
Dolichopodidæ, Notes on some British, with descriptions of new species	31, 142, 195, 245, 268	

	PAGE
<i>Doryphora 10-lineata</i>	40, 215
Doubleday, Henry, Death of	69
" Collection, The	253
<i>Ebulea stachydalis</i> , a <i>Pyrallis</i> new to Britain	158
Egg of <i>Cymatophora ridens</i> , On the	232
Entomological Society of London, Proceedings of the 19, 46, 71, 164, 188, 215, 233, 258, 279	
" " , Haggerston	165
" " , South London	166
"Entomologische Nachrichten"	44
Entomology, The Cycles of	89
" of Kerguelen's Island, Notes on the	1
<i>Eros minutus</i> , Note on	107
<i>Eupithecia togata</i> , On the habits, &c., of the larvæ of	157
European and exotic Lepidoptera	188
Eusemia, Revision of the Lepidopterous genus, with descriptions of new species	116
Exportation of Humble-bees to New Zealand	136
"Field and Forest—Bulletin of the Potomac-side Naturalists' Club"	90
First white Butterfly—which is it?	13
Flesh-fly, Monograph upon the British species of <i>Sarcophaga</i> , or	216, 260
Food-plant, The, in Britain, of the larva of <i>Zelleria saxifragæ</i>	86
Gall of <i>Aphilothrix radicis</i> , Note on the	42
Galls of <i>Andricus glandium</i> , Occurrence in Britain of the	83
Habit of <i>Cryptophagus populi</i> , Note on an unrecorded	107
" " larva of <i>Cidaria sagittata</i>	113
" " the larva of <i>Hemerocia Rheediella</i>	253
Habitat of <i>Dicranoneura citrinella</i> , Note on the	187
" " <i>Typhlocyba aurovittata</i> , Note on the	157
Habits of <i>Paraponyx stratiotalis</i> , On the larva and	160
" , On the, of <i>Psecadia flavitibiella</i>	88
" , &c., On the, of the larva of <i>Eupithecia togata</i>	157
Hagen's Bibliotheca, Von Salis Marschlins: another addition to	237
Haggerston Entomological Society	165
<i>Halesus digitatus</i>	187
<i>Halonota ravulana</i> , Re-occurrence of	68
<i>Helicopsyche</i> , Probable discovery of the imago of, in Europe	15
<i>Hemerocia Rheediella</i> , Habit of the larva of	253
Hemiptera, British—An additional species	154, 186
" " —Additions and corrections	29, 100
" " —Description of <i>Schirus picipes</i> , a new British species... ..	154
" , Capture of living, natives of the Cape of Good Hope, in the London Docks	236
" , Description of additional species to the list of British... ..	131, 154, 186, 249
" , Note on the odour emitted by	114
" -Heteroptera, British—Additional species	222
" " , Descriptions of five new species of European	221
" " , Notes on Mediterranean	79

	v.
	PAGE
Hemiptera-Homoptera, British—Additional species	203
" " , On certain British	21, 91, 168, 205, 239, 271
Hermaprodite <i>Lycæna Alexis</i>	111
Hesperiidæ, Descriptions of four new South American	250
"Historical Sketch of the Generic Names proposed for Butterflies," Notes on Mr. Scudder's	15
Homoptera, Notes on British, with descriptions of additional species ..	26, 76
Humble-bees to New Zealand, Exportation of	136
<i>Hydrocampa nymphæalis</i> , On the larva of, and its habits	210
Hymenoptera, Description of two new exotic Aculeate, of the families Thyn- nidæ and Crabronidæ	185
" of North Wales, A second contribution to the list of Aculeate	109
" , On killing and preserving	17, 43, 62
Ichneumonidæ, Descriptions of two new British	194
Insect incendiary, An	139
" organ-builder, An... .. .	237
Insects at St. Helena, Notes on	156, 252
Irish and Welsh Coleoptera, Note on a few	82
Japanese Rhopalocera, Notes on, with description of a new species ...	2
Kerguelen's Island, Notes on the Entomology of	1
" " On the Coleoptera of	54
Kerguelensi, Breves Dipt. uniusque Lepidopt. Insulæ, indigen. diagnoses ..	58
Killing, On, and preserving Hymenoptera	17, 43, 62
<i>Larentia cæsiata</i> , Is, double-brooded?	68, 86, 113
" <i>ruficinctata</i> and <i>L. cæsiata</i> , Natural History of	5
Larva and habits, On the, of <i>Paraponyx stratiotalis</i>	160
" " pupa of <i>Aplecta occulta</i> , Descriptions of the	66
" of <i>Abia sericea</i> , Note on the	111
" , &c., of <i>Agrotera nemoralis</i> , Description of the	232
" of <i>Botys lancealis</i> , Description of the	277
" " <i>terrealis</i> , " " "	209
" " <i>Catoptria aspidiscana</i>	141
" " <i>Cidaria sagittata</i> , Habit of	113
" , &c., of <i>Cleora glabraria</i> , Description of the	84
" of <i>Hemerostia Rheediella</i> , Habit of the	253
" " <i>Mesovelica furcata</i> , Note on the	115
" , &c., of <i>Pterophorus dichrodactylus</i> , Description of the	233
" " " " <i>microdactylus</i> , " " "	234
" " " " <i>rhododactylus</i> , " " "	88
" " " <i>Rhodophora suavelia</i> , " " "	13
" " " <i>Xylomyges conspicillaris</i> , " " "	83
" " " <i>Zelleria saxifragæ</i> , The food-plant in Britain of the	86
" " On the, of <i>Cataclysta lemmalis</i>	102
" , On the, of <i>Hydrocampa nymphæalis</i> and its habits	210
Larvæ of <i>Eupithecia togata</i> , On the habits, &c., of the	157
Leeds Naturalists' Field Club and Scientific Association	141
Lepidoptera from the Isle of Man, Notes on	138
" of Pembroke, Stray notes on the	181

	PAGE
Lepidoptera of the Pyrenees, Notes on the	138
"Lepidoptera, Rhopaloceres and Heteroceres." Herman Strecker	141
Leucania, A supposed new British species of	279
List of insects found in Kent and Surrey, Proposed	237
Locust, Migratory, in North Devon	215
Longicorn Coleoptera from New Zealand, Description of a new species of ...	57
Loxops coccineus in September	115
Lucanidæ, Descriptions of two new species of	172
Lycæna Alexis herinaphrodite	111
" Galathea, Note on	206
Lycenidæ, Descriptions of three new species of... ..	38
Mediterranean Hemiptera-Homoptera, Notes on	79
Melœ brevicollis near London	83
" cicatricosus, On the metamorphoses of	135, 187
Mesovelia furcata, Capture of	79
" " Note on the larva of	115
Metamorphoses of Cantharis vesicatoria, On the	187
" " Melœ cicatricosus, On the	135, 187
Migratory locust in North Devon	215
"Missouri, Seventh Annual Report on the Noxious, Beneficial, and other Insects of the State of." C. V. Riley... ..	44
Monograph on the British species of Sarcophaga, or Flesh-fly ...	216, 260
Myrina from W. Africa, Description of a new species of	106
Natural History of Larentia ruficinctata and L. cæsiata	5
" " " Xylina rhizolitha	140
Nematus from Corsica, Description of a new species of	9
" , On the species of, described in the Entomological Magazine ...	228
New British Tortrix, A,—Ablabia argentana	85
" genera and species of Prionidæ (Longicorn Coleoptera)... ..	47
" genus and species, On a, of the family Staphylinidæ	199
" species of Lycenidæ, Descriptions of three	38
" Zealand, Exportation of Humble-bees to	136
Noctuidæ, Captures of, near Orillia, in the province of Ontario, Canada West	254
"North Staffordshire Naturalists' Field Club"... ..	69
Note on a few Irish and Welsh Coleoptera	82
" " an unrecorded habit of Cryptophagus populi... ..	107
" " Mr. Scudder's "Remarks on the old genus Callidryas"	206
" " ravages of Otiorhynchus sulcatus	83
" " setting small Hymenoptera	43
" " sugaring	207, 236
" " the gall of Aphilothrix radicis	42
" " " larva of Mesovelia furcata	115
" " " odour emitted by Hemiptera	114
Notes on Acantropus	257
" " Anisotomidæ, with descriptions of three new species	149
" " British Coleoptera, with descriptions of three new species... ..	175
" " " Homoptera, with descriptions of additional species ...	26, 76

Notes on British Tortrices	...	...	...	...	...	...	7
" " Butterflies from Bolivia, with descriptions of two new species	...	...	...	...	...	...	153
" " Coleoptera in Cornwall, &c.	...	...	...	...	...	...	108
" " insects at St. Helena	...	...	...	...	...	...	156, 252
" " Japanese Rhopalocera, with description of a new species	...	...	...	...	...	...	2
" " Lepidoptera from the Isle of Man	...	...	...	...	...	...	138
" " Mediterranean Hemiptera-Heteroptera	...	...	...	...	...	...	79
" " Mr. Scudder's " Historical sketch of the generic names proposed for Butterflies "	...	...	...	...	...	...	15
" " some British Dolichopodidæ, with descriptions of new species	...	...	...	...	...	...	31, 142, 195, 245, 268
" " " species of <i>Corixa</i>...	...	...	...	...	...	...	137
" " the entomology of Kerguelen's Island	...	...	...	...	...	...	1
" " " Lepidoptera of the Prycees	...	...	...	...	...	...	138
" " " Tortrices of Pembrokeshire	...	...	...	...	...	...	230
" " Tortrices of the genus <i>Cochylis</i>	...	...	...	...	...	...	87
" " Stray, on the Lepidoptera of Pembroke	...	...	...	...	...	...	181
Observations on some species of <i>Bolitochara</i> , with description of a new European species	...	...	...	...	...	...	132
Ocellus, Abnormal absence of an, in a Trichopterous insect	...	...	...	...	...	...	65
Occurrence in Britain of <i>Cladius Brullæi</i>	...	...	...	...	...	...	42
" " " the galls of <i>Andricus glandium</i>	...	...	...	...	...	...	83
" " the North of Ireland of the true <i>Otiorhynchus monticola</i> , Germ.	...	...	...	...	...	...	82
" " of <i>Psammodius porcicollis</i> in Cornwall	...	...	...	...	...	...	62
Odour emitted by Hemiptera, Note on the	...	...	...	...	...	...	114
<i>Orchestes iota</i> , Note on ; with a moral	...	...	...	...	...	...	40
" <i>semirufus</i> , Note on	...	...	...	...	...	...	134
<i>Otiorhynchus monticola</i> , Note on	...	...	...	...	...	...	134
" " Occurrence in the North of Ireland of the true	...	...	...	...	...	...	82
" <i>sulcatus</i> , Note on ravages of	...	...	...	...	...	...	83
<i>Parponyx stratiotalis</i> , On the larva and habits of	...	...	...	...	...	...	160
<i>Peronea Lipsiana</i> , &c., at Witherslack	...	...	...	...	...	...	13
Phytophaga, Descriptions of hitherto uncharacterized species of	...	...	...	...	...	...	73
<i>Polia flavocincta</i> , Does, ever hibernate in the imago state?	...	...	...	...	...	...	258
Potato-beetle, The Colorado	...	...	...	...	...	...	40, 215
Preserving, On, Hymenoptera, Diptera, &c.	...	...	...	...	...	...	43
Prionidæ, New genera and species of (Longicorn Coleoptera)	...	...	...	...	...	...	47
<i>Prionoplus reticularis</i> in England	...	...	...	...	...	...	82
Probable discovery of the imago of <i>Helicopsyche</i> in Europe	...	...	...	...	...	...	15
Proceedings of the Entomological Society of London	...	...	...	...	...	...	19, 46, 71, 164, 188, 215, 238, 258, 279
Proposed list of insects found in Kent and Surrey	...	...	...	...	...	...	237
<i>Psammodius porcicollis</i> in Cornwall, Occurrence of	...	...	...	...	...	...	62
<i>Psecadia flavitibiella</i> , On the habits of	...	...	...	...	...	...	88
Pselaphidæ and Scydmaenidæ, On the names of some British species of	...	...	...	...	...	...	225
Psoricoptera gibbosella near Plymouth	...	...	...	...	...	...	114
Psychidæ, On collecting and rearing the...	...	...	...	...	...	...	112

	PAGE
<i>Pterophorus dichrodactylus</i> , Description of the larva, &c., of ...	233
„ <i>microdactylus</i> , „ „ „ „ „ „ „ „ „	234
„ <i>rhododactylus</i> , „ „ „ „ „ „ „ „ „	88
Query as to breeding <i>Agrotis agathina</i> ...	208
Ravages of <i>Otiorhynchus sulcatus</i> , Note on ...	83
Rearing, On collecting and, the <i>Psychidæ</i> ...	112
Redtenbacher, Death of Dr. Ludwig ...	238
“Remarks on the old genus <i>Callidryas</i> ,” Note on Mr. Scudder’s ...	206
Re-occurrence of <i>Halonota ravulana</i> ...	68
Revision of the Lepidopterous genus <i>Eusemia</i> , with descriptions of new species ...	116
<i>Rhodophaea suavella</i> , Description of the larva, &c., of ...	13
St. Helena, Note on insects at ...	156, 252
<i>Sarcophaga</i> , or Flesh-fly, Monograph upon the British species of ...	216, 260
Scudder’s “Historical sketch of the generic names proposed for Butterflies,”	
Note on Mr. ...	15
“Remarks on the old genus <i>Callidryas</i> ,” Note on Mr. ...	206
<i>Seydmænidæ</i> , On the names of some British species of <i>Pselaphidæ</i> and ...	225
Setting small Hymenoptera, Note on ...	43
<i>Solenobia pomonæ</i> , <i>Xysmatodoma melanella</i> and ...	208
South London Entomological Society ...	166
<i>Sphindus dubius</i> , &c., at Chatham ...	109
<i>Sphinx convolvuli</i> and <i>Dianthœcia albimacula</i> at Folkestone ...	157
„ „ at East Grinstead ...	139
„ „ „ Emsworth ...	111
„ „ „ Epsom ...	236
„ „ „ Kingussie, Inverness-shire ...	112
„ „ „ Putney ...	139
„ „ „ Twickenham ...	139
„ „ „ Watford ...	139
„ „ in Berwickshire ...	188
„ „ „ Devonshire ...	125
<i>Spilodes palealis</i> , &c., in Norfolk ..	114
„ „ on Barton Moss ...	114
<i>Staphylinidæ</i> , On a new genus and species of the family ...	199
Stray notes on the Lepidoptera of Pembroke ...	181
Stylops, Captures of ...	36
Sugaring, Note on ...	207, 236
<i>Symphædra Dirtea</i> attracted by bait ...	207
<i>Syriethus alveolus</i> , Note on ...	232
<i>Tenthredinidæ</i> , Descriptions of five new, or little known, species of British...	189
„ from Scotland, Descriptions of three new species of ...	127
Terebrant Hymenoptera, Notes on British ...	226
“The Lepidopterists’ Calendar” ...	69
“The Naturalist. New Series” ...	90
Tortrices, Notes on British ...	7
„ of Pembrokeshire. Notes on the ...	230

	ix. PAGE
Tortrices of the genus <i>Coehylis</i> , Notes on	87
<i>Trachys nana</i> of British collections, Note on the	226
<i>Trapezonotus distinguendus</i> , Note on, and its allies	136
Trichopterous insect, Abnormal absence of an ocellus in a	65
<i>Tropistethus holosericeus</i> at Riddlesdown, Capture of	15
<i>Typhlocyba aurovittata</i> , Note on the habitat of... ..	157
„ <i>hyperici</i> , Note on	138
<i>Ulopa decussata</i> and <i>U. trivialis</i> , Capture of	115
„ „ ♀, Capture of	15
<i>Vanessa Antiopa</i> at Chertsey	83
Von Salis Marschlins: another addition to Hagen's Bibliotheca	237
Welsh Coleoptera, Note on a few Irish and	82
Wilkinson, Thomas, Death of	279
<i>Xylina rhizolitha</i> , Natural history of	140
<i>Xylomyges conspicillaris</i> , Description of the larva of	83
<i>Xysmatodoma melanella</i> and <i>Solenobia pomonæ</i>	208
„ „ „, On, and the case of its larva	163
<i>Zelleria saxifragæ</i> , The food-plant in Britain of the larva of	86

INDEX OF SUBJECTS NOTICED IN THE PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF LONDON.

	PAGE
<i>Acentropus niveus</i>	280
<i>Ægialia rufa</i> near Southport	280
<i>Æschna mixta</i> in November	215
<i>Anisotoma</i> , New or rare British species of	188
Anniversary Meeting	238
<i>Anomalopteryx Chauviniana</i>	280
<i>Argynnis Dia</i> , British example of	258
Ascalaphidæ, Remarkable form of, from Australia	20
<i>Attacus</i> , Gigantic species of, from Queensland	215
Blaptidæ, New species of... ..	72
<i>Caloptenus spretus</i> , Habits, &c., of	72
<i>Catocala nupta</i> infested by Acari	165
<i>Cecidomyia botularia</i> in deformed ash-leaves	20
Chelifer parasitic under elytra of <i>Passalus</i>	20
<i>Chrysomela cerealis</i> from Snowdon	72
Clerideous Coleoptera from the Malay Archipelago	46
Coleoptera, New or rare species of British	165, 215
„ of Japan, Additions to the	215
Curculionidæ, Species of, from New Fribourg, attacked by a fungus	71
<i>Cychnus</i> and <i>Carabus</i> , Snail-eating species of	238, 259
Doubleday, Death of Henry	71

	PAGE
Ebulea stachydalis from Kingsbury	280
Endomycei, New genus and species of	165
Enoicyla, Living female of	165
Ephemeridæ, Proposed supplement to Monograph on the	280
Ephydra, Habits of	188
Fleas on neck of fowl	46
Gnats swarming	280
Grasshoppers, Apterous, in copulâ	258
Halias prasinana stridulating	46
Halictus nitidiusculus styloized	71
Heliozela sericeella, Mines of the larva of	164
Hemiptera-Heteroptera, Synopsis of British	165
Heteromera from Tierra del Fuego	165
Hylechthrus rubi parasitic on Prosopis rubicola	71
Hypsa, Species of the genus	165
Kerguelen's Island, Entomology of	20, 46
Leconte's collection	280
Lepidoptera, Differences in the broods of	259
„ from the Alps	215
Netrocoryne, Remarks on species of	72
Neuroptera of Japan	20, 46
New Zealand, Hymenoptera of	280
Nomia, New species of	20
Ornithoptera from Cochín, Habits of a species of	71
Osmia and Anthidium, Parasites of	71, 188
„ bicornis, Nest of, in the lock of a gate	71
Phylloxera vastatrix, Galls of, from near London	46
Podura, Species of, from the Sierra Nevada	46
Pompeii, A Dipterological note from	259
Psyllidæ, British species of	259
Rutelidæ from Eastern Asia and Eastern Archipelago	20
Spider, Trap-door, from Natal, in bark of trees	72
Staphylinidæ from the Amazon Valley	238
Stylops, Capture of males, and habits of	20, 280
Tipulidæ, New forms of	259
Xylina lambda, near Erith	280
Zygæna filipendulæ, Varieties of	188
„ meliloti, Habits of, and probable hybridization in,	46

SPECIAL INDEX.

COLEOPTERA.

PAGE

<i>Egosoma angustatum</i> (sp. n.), H. W. Bates	51
javanicum, Redt., Synonymy of	51
<i>Ærogrammus</i> (g. n.), H. W. Bates	50
rufus (sp. n.), "	51
<i>Agónelytra</i> (g. n.), C. O. Waterhouse	55
angusticollis (sp. n.), "	56
brevis " "	57
gracilipes " "	56
longipennis " "	56
<i>Aleochara hibernica</i> (sp. n.), Rye...	175
<i>Anaspis</i> (sp. n.)	62
<i>Anisotoma algerica</i> (sp. n.), Rye ...	151
baicalensis " " ...	151
clavicornis " " ...	150
curta	150
litura, var. n. maculicollis, Rye	152
lunicollis, Rye	152
macropus "	152
oblonga, ♂	149
<i>Anisoxya fuscula</i>	83
<i>Anoplodermma quadricolle</i> (sp. n.) H. W. Bates	47
<i>Antherophagus silaceus</i>	109
<i>Aphodius villosus</i> at Mickleham ...	39
<i>Apotrophus</i> (g. n.), H. W. Bates...	48
simplicicollis (sp. n.), H. W. Bates	49
<i>Atomaria divisa</i> (sp. n.), Rye ...	178
impressa... ..	62
<i>Bolitochara</i> , Observations on ...	132
Mulsanti, Sharp	133
Reyi (sp. n.), Sharp... ..	133
<i>Bryaxis cotus</i> (Lefebvrei, Shp.) ...	225
<i>Canonopsis</i> (g. n.), C. O. Waterhouse	54
sericeus (sp. n.), "	55
<i>Cantharis vesicatoria</i> , Metamorphoses of	187
<i>Cephalolia cæruleata</i> (sp. n.), Baly	75
emarginata " "	74
<i>Charispa amicula</i> " "	73
cærulescens " "	74
elongata " "	73
<i>Chiasognathus Higginsi</i> (sp. n.), Parry	174
<i>Choleva colonoides</i>	62
<i>Chrysomela marginata</i>	135
Colon Barnevillei (= Zebii, var.)...	177
Colorado potato beetle	40, 215

PAGE

<i>Compsochilus palpalis</i> at Caterham ...	39
Cossonidæ of St. Helena	252
<i>Cryptophagus populi</i> associated with Col- letes	107
ruficornis	109
subfumatus	178
<i>Cyclommatus Zuberi</i> (sp. n.), C. O. Waterhouse	173
<i>Demotispia elegans</i> (sp. n.), Baly ...	75
<i>Dinoprius</i> (g. n.), H. W. Bates	49
cephalotes (sp. n.), H. W. Bates	50
<i>Eros minutus</i>	107
<i>Erythræus</i> (g. n.), H. W. Bates	52
borneensis (sp. n.), H. W. Bates	53
<i>Euplectus Abeillei</i>	225
Duponti... ..	225
piceus	225
punctatus	225
<i>Graptodera ericeti</i>	179
helianthemii	179
longicollis	179
montana	180
oleracea	180
<i>Harpalus tenebrosus</i> in Cornwall ...	108
<i>Homalium gracilicorne</i>	176
<i>Homalota clavipes</i> in Ireland	82
egregia (sp. n.), Rye	176
eremita in Ireland	82
nitidula "	82
tibialis "	82
valida "	82
<i>Hydroporus assimilis</i> , var.	175
<i>Megapenthes lugens</i>	39
<i>Meloe brevicollis</i> near London	83
cicatricosus, Metamorphoses of ...	135
<i>Mycetoporus (tenuis ?)</i> in Ireland ...	82
<i>Myrmecoxenus vaporariorum</i>	62
<i>Nanophyes gracilis</i> , Synonymy of ...	178
<i>Odontolabis Gouberti</i> (sp. n.), C. O. Waterhouse	172
<i>Olibrus helveticus</i>	177
<i>Orchestes iota</i>	40
semirufus	134
<i>Otiorhynchus monticola</i>	82, 134
sulcatus, Ravages of	83
<i>Oxypoda rupicola</i> , Rye, in Ireland ...	82
<i>Parandra Janus</i> (sp. n.), H. W. Bates	47
<i>Phalacrus</i>	177

	PAGE
<i>Phytosus atriceps</i> (sp. n.), C. O. Waterhouse	54
<i>Platysoma oblongum</i> near Manchester	62
<i>Prionoplus freticularis</i> in England	82
<i>Psammobius porcicollis</i> in Cornwall	62, 108
<i>Psylliodes instabilis</i>	180
<i>Scydmaenus glyptocephalus</i>	225
<i>helvolus</i>	225
<i>Sharpi</i>	225
<i>Sparshalli</i>	225
<i>Silpha chœradica</i> , Von Salis	237
<i>Sphindus dubius</i> at Chatham	109
<i>Temnesthes</i> (g. n.), H. W. Bates	51
<i>lobicollis</i> (sp. n.), H. W. Bates	52
<i>Thyamis ferruginea</i>	180
<i>Trachys pumila</i>	226
<i>Triarthron Mærkeli</i>	152
<i>Trimium brevicorne</i> and <i>brevipenne</i>	225
<i>Vatesus</i> (g. n.), Sharp	201
<i>latitans</i> (sp. n.), Sharp	202
<i>Zorion Batesi</i> (sp. n.), Sharp	57

DIPTERA.

<i>Amalopteryx</i> (g. n.), Eaton	58
<i>maritima</i> (sp. n.), Eaton	58
<i>Anatalanta</i> (g. n.), Eaton	59
<i>aptera</i> (sp. n.), Eaton	59
<i>Apetænus</i> (g. n.), Eaton	58
<i>litoralis</i> (sp. n.), Eaton	58
<i>Calycopteryx</i> (g. n.), Eaton	59
<i>Mosleyi</i> (sp. n.), Eaton	59
<i>Chrysotus</i> , Revision of British species of	245
<i>amplicornis</i> , Zett.	248
<i>blepharosceles</i> , Kow.	246
<i>microcerus</i> , Kow.	248
<i>palustris</i> (sp. n.), Verrall	247
<i>pulchellus</i> , Kow.	248
<i>Diaphorus dorsalis</i> (sp. n.), Verrall	198
<i>Dolichopodidæ</i> , British	31, 142, 195, 245, 268
<i>Dolichopus latilimbatus</i>	31
<i>mediicornis</i> (sp. n.), Verrall	32, 123
<i>puncticornis</i>	142
<i>strigipes</i> (sp. n.), Verrall	143
<i>Empis borealis</i>	13
<i>Gymnopternus chrysozygus</i>	145
<i>plagiatus</i>	34
<i>Hydrophorus præcox</i>	269
<i>Halirytus</i> (g. n.), Eaton	60
<i>amphibius</i> (sp. n.), Eaton	60
<i>Limnophyes</i> (g. n.), Eaton	60
<i>pusillus</i> (sp. n.), Eaton	60

	PAGE
<i>Medeterus flavipes</i> ...	270
<i>Porphyrops simplex</i> (sp. n.), Verrall	195
<i>tenuis</i> " "	197
<i>Sarcophaga</i> , Monograph of British species of ...	216, 260
<i>adolescens</i> , Rond.	263
<i>affinis</i> , Fall.	264
<i>agricola</i> , Meig.?	261
<i>albiceps</i> " ?	260
<i>Atropos</i> "	260
<i>clathrata</i> "	263
<i>cruentata</i> "	266
<i>dissimilis</i> "	264
<i>hæmatodes</i> "	266
<i>hæmorrhœa</i> "	267
<i>hæmorrhoidalis</i> , Zett.	265
<i>infantula</i> , Rond.	265
<i>juvenis</i> "	263
<i>laticornis</i> , Meig.	262
<i>melanura</i> "	261
<i>nigriventris</i> "	262
<i>nurus</i> , Rond.	266
<i>setipennis</i> "	264
<i>similis</i> (sp. n.), Meade	261
<i>Sympycnus bifasciellus</i>	269
<i>nigritibialis</i>	268
<i>Syntormon œdicnemus</i>	146
<i>Tipula alpina</i>	13
<i>Teuchophorus pectinifer</i>	268
<i>Xiphandrium auctum</i>	148

HEMIPTERA-HETEROPTERA.

<i>Acompocoris alpinus</i>	249
<i>Calyptonotus Putoni</i> (sp. n.), E. Saunders	221
<i>Walkeri</i> " "	221
Captures in Cornwall	108
<i>Corixa</i> , Notes on some species of	137
<i>prominula</i>	224
<i>Cryptacrus pinguis</i> found alive in London	236
<i>Gerris aspera</i>	223
<i>Lopus sulcatus</i>	186
<i>Loxops coccineus</i> in September	115
<i>Macrocoleus tanacetii</i>	131
<i>Macropterna Lethierryi</i> (sp. n.), E. Saunders	221
Mediterranean species, Notes on	79
<i>Mesovelgia furcata</i> , Capture of, in Britain	79
<i>Parra</i>	115
<i>Myrmedobia tenella</i>	249
<i>Nabis Poweri</i> (sp. n.), E. Saunders	250
<i>rugosus</i>	154
Odour emitted by Hemiptera	114

	PAGE
<i>Oncotylus nigricornis</i> (sp. n.), E. Saunders	222
<i>Pilophorus clavatus</i> , Lin.	100
<i>perplexus</i> (sp. n.), Douglas and Scott	101
<i>Salda pallipes</i>	30
<i>pilosella</i>	30
<i>Scolopostethus brevis</i> (sp. n.), E. Saunders	221
<i>Trapezonotus dispar</i>	222
<i>distinguendus</i> and its allies	136
<i>Tropistethus holosericeus</i> at Riddlesdown	15

HEMIPTERA-HOMOPTERA.

<i>Allygus</i> (g. n.), (Fieb.), Scott	169
<i>commutatus</i> (sp. n.), (Fieb.), Scott	171
<i>mixtus</i>	171
<i>modestus</i> (sp. n.), (Fieb.), Scott	172
<i>Athysanus canescens</i>	95
<i>depressus</i> (sp. n.), Scott	95
<i>dilutior</i>	99
<i>griseus</i>	95
<i>irroratus</i> (sp. n.), Scott	96
<i>nervosus</i>	168
<i>obscurus</i>	98
<i>obsoletus</i>	97
<i>piceus</i> (sp. n.), Scott	97
<i>plebeius</i>	98
<i>prasinus</i>	99
<i>sordidus</i>	96
<i>striatulus</i>	100
<i>striola</i>	168
<i>subfuscus</i>	99
<i>Deltocephalidæ</i> , Revision of British	239
<i>Deltocephalus abdominalis</i>	242
<i>Argus</i>	276
<i>assimilis</i>	243
<i>Falleni</i>	271
<i>flavipennis</i> (sp. n.), Scott	242
<i>longicaput</i> " "	239
<i>maculiceps</i>	241
<i>metrius</i>	241
<i>Minki</i>	243
<i>Mulsanti</i>	240
<i>ocellaris</i>	275
<i>oculatus</i>	274
<i>pascuellus</i>	244
<i>pulicaris</i>	275
<i>punctum</i>	271
<i>sabulicola</i>	272
<i>socialis</i>	273
<i>striatus</i>	272

	xiii.	PAGE
<i>Dicranoneura citrinella</i>	27, 187	
<i>mollicula</i>	28	
<i>pygmaea</i> (sp. n.), Douglas	203	
<i>Eurybregma</i> (g. n.), Scott	92	
<i>nigrolineata</i> (sp. n.), Scott	92	
<i>Eupteryx tenellus</i>	204	
<i>Graphocrærus ventralis</i>	25	
<i>Issus</i> associated with ants	11	
<i>Liburnia paludosa</i>	205	
<i>Tettigometrae</i> associated with ants	10	
<i>Thamnotettix</i> , Zett. (genus)	21	
<i>attenuata</i>	22	
<i>corniculus</i>	23	
<i>coronifer</i>	24	
<i>crocea</i>	22	
<i>cruentata</i>	23	
<i>frontalis</i>	25	
<i>intermedia</i>	25	
<i>melanopsis</i>	23	
<i>nigricornis</i>	91	
<i>Preyssleri</i>	25	
<i>quadrinotata</i>	25	
<i>splendida</i>	24	
<i>torneella</i> (punctifrons)	24	
<i>virescens</i>	25	
<i>vitripennis</i>	24	
<i>Typhlocyba alneti</i>	77	
<i>aurovittata</i> (sp. n.), Doug.	76, 157	
<i>cratægi</i> " "	203	
<i>debilis</i> " "	204	
<i>gratiosa</i>	76	
<i>hyperici</i> , Note on	138	
<i>lactea</i>	77	
<i>rosea</i>	77	
<i>tenerrima</i>	28	
<i>tiliae</i>	79	
<i>Typhlocybidæ</i> , British species	26	
<i>Ulopa decussata</i> , ♀, at Riddlesdown	15, 115	
<i>trivia</i> , ♂, " "	115	

HYMENOPTERA.

<i>Abia sericea</i>	111
<i>Ælurus flavopictus</i> (sp. n.), Ritsema	185
<i>Agencia bifasciata</i>	110
<i>Andrena nigriceps</i>	110
<i>Andricus glandium</i>	83
Ants, Fondness of, for Homoptera	10
<i>Aphilothrix radialis</i>	42
<i>Astata stigma</i>	109
<i>Bassus peronatus</i> (sp. n.), Marshall	104

	PAGE
<i>Cladius Brullæi</i>	42
<i>Drewseni</i>	228
North European species	228
<i>Cynipidæ</i> , New British species	226
<i>Eriocampa æthiops</i>	192
<i>Eumesius crassicornis</i>	195, 228
<i>Fenella nigrita</i> , Synonymy of	131
<i>Hymenoptera</i> , On killing and preserving 17, 43, 62	
<i>Ichneutes reunitor</i> , var. <i>brevis</i>	195
<i>Limneria croceipes</i> (sp. n.), Marshall	194, 228
<i>Nematus baccarum</i> (sp. n.), Cameron	189
<i>cadderensis</i> „ „	127
<i>crassipes</i> , var. <i>n. vacciniellus</i> , Cameron	190
<i>dorsatus</i> (sp. n.), Cameron	129
<i>flavipennis</i> „ „	189
<i>luteus</i>	130
<i>Marshalli</i> (sp. n.), Cameron	9
<i>melanocephalus</i> , Synonymy of	129
<i>Sharpi</i> (sp. n.), Cameron	191
Synonymy of species described by Newman	228
<i>Nysson dimidiatus</i>	110
<i>Phænusa albipes</i> (sp. n.), Cameron	131
<i>Polistes bipustulatus</i> near Liverpool	156
<i>Psen ornatus</i> (sp. n.), Ritsema	185
<i>Tenthredinidæ</i> , New British species	227
<i>Wales</i> , <i>Aculeata</i> in North... ..	109

LEPIDOPTERA.

<i>Ablabia argentana</i>	85
<i>Acherontia Atropos</i>	188
<i>Agrotera nemoralis</i>	232
<i>Agrotis agathina</i>	208
<i>fennica</i>	254
<i>Antispila Pfeifferella</i>	253
<i>Aphnæus Vixinga</i>	39
<i>Aplecta occulta</i>	66
<i>Argynnis Dia</i>	229
<i>Botys lancealis</i>	277
<i>terrealis</i>	209
<i>Butalis incongruella</i>	13
<i>Caradrina cubicularis</i>	230
<i>Cataclysta lemnalis</i>	102
<i>Catoptria aspidiscana</i>	141
<i>cæcimaculana</i>	231
<i>Ceratinia Boucardi</i>	126
<i>Mylassa</i>	126
<i>Cherocampa Erotus</i>	139

	PAGE
<i>Cidaria sagittata</i>	113
<i>Cleora glabraria</i>	84
<i>Cochylis dilucidana</i>	88
<i>flagellana</i>	87
<i>Francillana</i>	87
<i>sanguinana</i>	87
<i>Coleophora conyzæ</i>	164
<i>fuscocuprella</i>	163
<i>Colias Edusa</i>	215
<i>Hyale</i>	3
<i>Crambus geniculellus</i>	138
<i>latistrius</i>	114
<i>Cymatophora ridens</i>	232
<i>Danaïs Tytia</i>	3
<i>Dasypolia Templi</i>	229
<i>Deilephila livornica</i>	44
<i>Dianthœcia albimacula</i>	157
<i>Dicrorampha acuminatana</i>	230
<i>consortana</i>	231
<i>tanaceti</i>	68, 231
<i>Ebulea stachydalis</i>	158
<i>Embryonopsis halticella</i>	61
<i>Ephippiphora signatana</i>	230
<i>Epichnopteryx helix</i>	113
<i>Erebia merula</i>	10
<i>Erycides Gaudialis</i>	250
<i>tenebricosa</i>	251
<i>Teutas</i>	251
<i>Euchromia ericetana</i>	230
<i>purpurana</i>	230
<i>Eupithecia togata</i>	157
<i>Eupœcilia affinitana</i>	231
<i>atricapitana</i>	231
<i>hybridella</i>	231
<i>rupicola</i>	231
<i>vectisana</i>	231
<i>Eusemia adulatrix</i>	117
<i>afflicta</i>	118
<i>africana</i>	120
<i>Agrius</i>	121
<i>albomarginata</i>	124
<i>amatrix</i>	123
<i>arruana</i>	123
<i>Aruna</i>	123
<i>basalis</i>	122
<i>Batesi</i>	125
<i>Belangeri</i>	122
<i>bellatrix</i>	117
<i>Bisma</i>	119
<i>Butleri</i>	121
<i>Clymene</i>	123

			XV.		
			PAGE		
<i>Eusemia communicans</i> ... ..	...	119	<i>Heliophobus popularis</i> ... ..	...	111
<i>communis</i> ... ..	...	119	<i>Hemerusia Rheediella</i> ... ..	...	253
<i>connexa</i> ... ..	...	119	<i>Hydrocampa nymphæalis</i>...	...	210
<i>contigua</i> ... ..	...	120	<i>Hypochrysops Bubases</i> ... ..	...	38
<i>contracta</i> ... ..	...	117	<i>Delicia</i> ... ..	...	38
<i>dentatrix</i> ... ..	...	119	<i>Ismene Benjamini</i> , var. <i>japonica</i>...	...	4
<i>distincta</i> ... ..	...	118	<i>Ithomia Pagasa</i> ... ..	...	126
<i>Doleschalli</i> ... ..	...	124	<i>Larentia cæsiata</i>	5, 68, 86, 113	
<i>Eriopis</i> ... ..	...	121	<i>ruficinctata</i>	5, 68, 87, 113	
<i>eudamoides</i> ... ..	...	124	<i>Leptalis Hippotas</i> ... ..	...	10
<i>Euphemia</i> ... ..	...	120	<i>Medorina</i> ... ..	...	9
<i>fasciatrix</i> ... ..	...	119	<i>Lethe Diana</i> ... ..	...	3
<i>flaviciliata</i> ... ..	...	125	<i>Sicelis</i> ... ..	...	3
<i>hesperioides</i> ... ..	...	122	<i>Whiteleyi</i> ... ..	...	3
<i>Irenæa</i> ... ..	...	119	<i>Leucania</i> , sp. — ? ... ..	...	279
<i>josioides</i> ... ..	...	125	<i>Leucophasia amurensis</i> ... ..	...	3
<i>lectrix</i> ... ..	...	118	<i>Lycæna Alexis</i> ... ..	...	111
<i>Lethe</i> ... ..	...	125	<i>Argus</i> ... ..	...	3
<i>Lindigi</i> ... ..	...	125	<i>Galathea</i> ... ..	...	206
<i>longipennis</i> ... ..	...	121	<i>metallica</i> ... ..	...	207
<i>maculatrix</i> ... ..	...	118	<i>Nycula</i> ... ..	...	207
<i>Megisto</i> ... ..	...	125	<i>Micropteryx salopiella</i> ... ..	...	13
<i>Moorei</i> ... ..	...	122	<i>Myrina Genuba</i> ... ..	...	106
<i>nigripennis</i> ... ..	...	117	<i>Pamphila flava</i> ... ..	...	4
<i>nipalensis</i>...	...	118	<i>sylvanus</i>...	...	4
<i>orientalis</i> ... ..	...	117	<i>Papilio Xenagoras</i> ... ..	...	153
<i>Pales</i> ... ..	...	121	<i>Xynias</i> ... ..	...	153
<i>pallida</i> ... ..	...	121	<i>Paraponyx stratiotalis</i> ... ..	...	160
<i>pardalina</i> ... ..	...	120	<i>Penthina marginana</i> ... ..	...	230
<i>Pedasus</i> ... ..	...	121	<i>Peronea Lipsiana</i> ... ..	...	13
<i>Peshwa</i> ... ..	...	121	<i>Pieris Melete</i> ... ..	...	3
<i>proxima</i> ... ..	...	123	<i>napi</i> ... ..	...	13
<i>pulchra</i> ... ..	...	122	<i>rapæ</i> ... ..	...	13
<i>sectinotis</i> ... ..	...	117	<i>Polia flavocincta</i> ... ..	...	258
<i>Semper</i> ... ..	...	124	<i>Psecadia flavitibiella</i> ... ..	...	88
<i>silhetensis</i> ... ..	...	116	<i>Psoricoptera gibbosella</i> ... ..	...	114
<i>simplex</i> ... ..	...	118	<i>Pterophorus dichrodactylus</i> ... ..	...	233
<i>subdives</i> ... ..	...	122	<i>microdactylus</i> ... ..	...	234
<i>superba</i> ... ..	...	120	<i>rhododactylus</i> ... ..	...	88
<i>terminalis</i> ... ..	...	121	<i>tephradactylus</i> ... ..	...	13
<i>tricolor</i> ... ..	...	122	<i>Pyrrhopyga Agenaria</i> ... ..	...	251
<i>Tyrianthina</i> ... ..	...	116	<i>Rhodophaa suavella</i> ... ..	...	13
<i>vacillans</i> ... ..	...	123	<i>Sciaphila perterana</i>...	...	230
<i>vetula</i> ... ..	...	119	<i>Solenobia pomonæ</i> ... ..	...	208
<i>victrix</i> ... ..	...	117	<i>Sphinx convolvuli</i>	111, 112, 125, 139, 157, 188, 236	
<i>villicoides</i>...	...	120	<i>Spilodes palealis</i> ... ..	...	114
<i>vittata</i> ... ..	...	122	<i>Stigmonota erectana</i> ... ..	...	8
<i>vulcania</i> ... ..	...	123	<i>nitidana</i> ... ..	...	7
<i>Zea</i> ... ..	...	121	<i>Weirana</i> ... ..	...	7
<i>Gracilaria phasianipennella</i>	13, 163		<i>Stilbia anomala</i> ... ..	...	138
<i>Halonota ravulana</i> ... ..	...	68			

	PAGE		PAGE
Syriethus alveolus	232	Zelleria insignipennella	163
Trochilium ichneumoniforme ..	182	saxifragæ	86
Vanessa Antiopa	83		
polychloros	4		
xanthomelas	4		
Xylina rhizolitha	140		
Xylomyges conspicillaris	83		
Xysmatodoma melanella	163, 208		

NEUROPTERA (*in the Linnean sense*).

Helicopsyche in Europe	15
Stenophylax rotundipennis	65
Halesus digitatus	187

INDEX TO CONTRIBUTORS.

	PAGE		PAGE
Baly, Joseph S., F.L.S.	73	John, Evan	44
Barrett, C. G.	7, 158, 181, 230	Jones, A. V.	236
Barrett, J. Platt	237	Jordan, R. C. R., M.D.	188
Bates, H. W., F.L.S.	47	Kriechbaumer, Dr.	17
Blackmore, Trovev	139	Lewis, W. Arnold, F.L.S.	229
Bolton, H. H., Jun.	83	Lichtenstein, Jules	135
Boyd, W. C., F.L.S.	163	McLachlan, R., F.L.S.	15, 65, 114, 187
Briggs, C. A.	230	Marshall, Rev. T. A., M.A., F.L.S.	194
Buckler, W. ... 13, 66, 84, 102, 111, 140, 160, 210, 233, 234, 277		Matth-ews, T.	111
Buckmaster, C. J.	229	Meade, R. H.	216, 260
Butler, A. G., F.L.S.	15, 116, 206	Meldola, Raphael, F.C.S.	139
Cameron, P., Jun. ... 9, 42, 83, 111, 127, 189, 226, 228		Moncreaff, Henry	40
Champion, G. C.	39, 82, 107, 134, 236	Murray, Rev. R. P., M.A.	2, 207
Chapman, Thomas	68	Norman, George	208, 254
Chappell, Joseph	62, 114	Parry, Major F. J. S., F.L.S.	174
Cooke, Benjamin	43	Pierret, E.	114
Cottam, Arthur	139	Porritt, G. T., F.L.S. ... 68, 88, 138, 209, 236, 258	
Crewe, Rev. H. Harpur, M.A. ... *	157	Ragonot, E. L.	87
De Borre, A. P.	40	Ritsema, C.	185, 257
Decastro, H.	139	Rouast, G.	112
Delpino, Prof. F.	10	Rye, E. C., F.Z.S.	107, 149, 175, 237
Distant, W. L.	138	Sandison, W.	188, 207
Douglas, J. W. ... 15, 26, 29, 76, 83, 89, 114, 115, 136, 137, 138, 154, 157, 203, 222		Saunders, E., F.L.S. ... 131, 154, 186, 221, 249	
Druce, Herbert, F.L.S.	126	Saunders, William	113
D'Urban, W. S. M., F.L.S.	215	Scott, John ... 21, 79, 91, 92, 93, 115, 168, 205, 236, 239, 271	
Eaton, Rev. A. E., M.A.	1, 58	Sharp, David, M.B.	57, 132, 199, 225
Enock, Frederick	36	Smith, Frederick	36, 62, 109, 112, 156
Fenn, Charles	83	Spiers, Ernest S.	83
Forbes, W. A.	135	Stainton, H. T., F.R.S.	13, 88, 164, 253
Gill, W. Battershell, M.D.	114, 279	Ullyett, Henry	157
Gill, Rev. W. Wyatt	139	Verrall, G. H.	31, 142, 195, 245, 268
Hall, C. G.	82	Wailly, A.	83
Harding, George	208	Walker, James J., R.N.	62, 79, 108, 109
Hellins, Rev. J., M.A.	5, 113, 232	Ward, A. O.	43
Hewitson, W. C., F.L.S. ... 9, 38, 106, 153, 250		Waterhouse, Charles O.	54, 172
Hodgkinson, J. B.	13, 68, 141, 163	Webb, Sydney	68
		White, F. Buchanan, M.D., F.L.S.	85, 86
		Wollaston, T. V., M.A., F.L.S.	156, 252

LIST OF NEW GENERA AND SPECIES, &c., DESCRIBED IN THIS VOLUME,

COLEOPTERA.

GENERA.

PAGE

<i>Ærogrammus</i> , <i>H. W. Bates</i>	50
<i>Agonelytra</i> , <i>C. O. Waterhouse</i>	55
<i>Apotrophus</i> , <i>H. W. Bates</i>	48
<i>Canonopsis</i> , <i>C. O. Waterhouse</i>	54
<i>Dinoprionus</i> , <i>H. W. Bates</i>	49
<i>Erythrenus</i> , "	52
<i>Temnesthes</i> , "	51
<i>Vatesus</i> , <i>Sharp</i>	201

SPECIES.

<i>Ægosoma angustatum</i> , <i>H. W. Bates</i> , <i>Ceylon</i> ..	51
<i>Ærogrammus rufus</i> , " <i>Borneo</i> ..	51
<i>Agonelytra angusticollis</i> , <i>C. O. Waterhouse</i> , <i>Kerguelen I.</i> ..	56
<i>brevis</i> , " " ..	57
<i>gracilipes</i> , " " ..	56
<i>longipennis</i> , " " ..	56
<i>Aleochara hibernica</i> , <i>Rye</i> , <i>Ireland</i>	175
<i>Anisotoma algerica</i> , " <i>Algiers</i>	151
<i>baicalensis</i> , " <i>Siberia</i>	151
<i>clavicornis</i> , " <i>Scotland</i>	150
<i>Anoplodernna quadricolle</i> , <i>H. W. Bates</i> , <i>Mendoza</i> ..	47
<i>Apotrophus simplicicollis</i> , " <i>Brazil</i> ..	49
<i>Bolitochara Reyi</i> , <i>Sharp</i> , <i>France</i>	133
<i>Bryaxis cotus</i> , " <i>MS.</i> , <i>Scotland</i> ..	225
<i>Canonopsis sericeus</i> , <i>C. O. Waterhouse</i> , <i>Kerguelen I.</i> ..	55
<i>Cephalolia cæruleata</i> , <i>Baly</i> , <i>Brazil</i>	75
<i>emarginata</i> , " <i>Pará</i>	74
<i>Charispa amicula</i> , " "	73
<i>cærulescens</i> , " <i>Bahia</i>	74
<i>elongata</i> , " <i>Rio Grande</i> ..	73
<i>Chiasognathus Higginsi</i> , <i>Parry</i> , <i>Bolivia</i> ..	174
<i>Cyclommatus Zuberi</i> , <i>C. O. Waterhouse</i> , <i>Philippines</i> ..	173
<i>Demotispa elegans</i> , <i>Baly</i> , <i>Ecuador</i>	75
<i>Dinoprionus cephalotes</i> , <i>H. W. Bates</i> , <i>India</i> ..	50
<i>Erythranus borneensis</i> , " <i>Sarawak</i> ..	53
<i>Odontolabis Gouberti</i> , <i>C. O. Waterhouse</i> , <i>Philippines</i> ..	172
<i>Parandra Janus</i> , <i>H. W. Bates</i> , <i>Celebes</i> , <i>New Guinea</i> ..	47
<i>Phytosus atriceps</i> , <i>C. O. Waterhouse</i> , <i>Kerguelen I.</i> ..	54
<i>Temnesthes lobicollis</i> , <i>H. W. Bates</i> , <i>Bogotá</i> ..	52
<i>Vatesus latitans</i> , <i>Sharp</i> , <i>Paraná</i>	202
<i>Zorion Batesi</i> , " <i>N. Zealand</i>	57

DIPTERA.

GENERA.

PAGE

<i>Amalopteryx</i> , <i>Eaton</i>	58
<i>Anatalanta</i> , "	59
<i>Apetenus</i> , "	58
<i>Calycopteryx</i> , "	59
<i>Halirytus</i> , "	60
<i>Limnophyes</i> , "	60

SPECIES.

<i>Amalopteryx maritima</i> , <i>Eaton</i> , <i>Kerguelen I.</i> ..	58
<i>Anatalanta aptera</i> , " " ..	59
<i>Apetenus litoralis</i> , " " ..	58
<i>Calycopteryx Mosleyi</i> , " " ..	59
<i>Chrysotus palustris</i> , <i>Verrall</i> , <i>England</i> ...	247
<i>Diaphorus dorsalis</i> , " " ..	198
<i>Dolichopus mediicornis</i> , " " ..	32
<i>strigipes</i> , " " ..	143
<i>Halirytus amphibius</i> , <i>Eaton</i> , <i>Kerguelen I.</i> ..	60
<i>Limnophyes pusillus</i> , " " ..	60
<i>Porphyrops simplex</i> , <i>Verrall</i> , <i>England</i> ...	195
<i>tenuis</i> , " <i>Scotland</i> ...	197
<i>Sarcophaga similis</i> , <i>Meade</i> , <i>England</i>	261

HEMIPTERA-HETEROPTERA.

<i>Calyptonotus Putoni</i> , <i>E. Saunders</i> , <i>Algeria</i> ..	221
<i>Walkeri</i> , " <i>Malta</i>	221
<i>Macropterna Lethierryi</i> , " <i>Attica</i>	221
<i>Nabis Poweri</i> , " <i>England</i> ...	250
<i>Oncotylus nigricornis</i> , " <i>La Rochelle</i> ..	222
<i>Pilophorus perplexus</i> , <i>Douglas & Scott</i> , <i>England</i> ..	101
<i>Scolopostethus brevis</i> , <i>E. Saunders</i> , <i>Malta</i> ..	221

HEMIPTERA-HOMOPTERA.

GENERA.

<i>Allygus</i> (<i>Fieb.</i>), <i>Scott</i>	160
<i>Eurybregma</i> , <i>Scott</i>	92
SPECIES.	
<i>Allygus commutatus</i> , <i>Scott</i> , <i>England</i> ...	171
<i>modestus</i> , " " ..	172
<i>Athysanus depressus</i> , " " ..	95
<i>irroratus</i> , " " ..	96
<i>piceus</i> , " " ..	97
<i>Deltocephalus flavipennis</i> , " " ..	242
<i>longicaput</i> , " " ..	240
<i>Dicranoneura pygmaea</i> , <i>Douglas</i> , <i>England</i> ..	203
<i>Eurybregma nigrolineata</i> , <i>Scott</i> , " ..	92

	PAGE
<i>Typhlocyba aurovittata</i> , Douglas, ..	76, 157
<i>cratægi</i> , ..	203
<i>debilis</i> , ..	204

HYMENOPTERA.

<i>Ælurus flavopictus</i> , C. Ritsema, Aru.....	185
<i>Bassus peronatus</i> , T.A. Marshall, Scotland	194
<i>Limneria croceipes</i> , ..	194
<i>Nematus baccarum</i> , Cameron, Scotland...	189
<i>cadderensis</i> , ..	127
<i>dorsatus</i> , ..	129
<i>flavipennis</i> , ..	189
<i>Marshalli</i> , .. Corsica ...	9
<i>Sharpi</i> , .. Scotland...	191
<i>Phænusa albipes</i> , ..	131
<i>Psen ornatus</i> , C. Ritsema, Java	185

LEPIDOPTERA.

GENUS.

EMBRYONOPSIS, Eaton	61
SPECIES.	
<i>Aphnæus Vixinga</i> , Hewitson, Borneo ...	39
<i>Ceratinia Boucardi</i> , Druce, Veragua	126
<i>Mylassa</i> , ..	126

	PAGE
<i>Embryonopsis halticella</i> , Eaton, <i>Kerguelen I.</i>	61
<i>Erebia Merula</i> , Hewitson, New Zealand..	10
<i>Erycides gaudialis</i> , .. Chiriqui	250
<i>tenebricosa</i> , .. Peru	251
<i>Teutas</i> , .. Amazons	251
<i>Eusemia afflicta</i> , Butler, Bombay	118
<i>contracta</i> , .. India	117
<i>eudamoides</i> , .. Celebes	124
<i>sectinotis</i> , .. India	117
<i>simplex</i> , .. Canara	118
<i>tyrianthina</i> , .. N. India	116
<i>vulcania</i> , .. Burmah	123
<i>Hypochrysops Bubases</i> , Hewitson, Malacca	38
<i>Delicia</i> , .. Australia	38
<i>Ithomia Pagasa</i> , Druce, Veragua	126
<i>Leptalis Hippotas</i> , Hewitson, Ecuador...	10
<i>Medorina</i> , .. Bolivia ...	9
<i>Myrina Genuba</i> , .. Cameroons	106
<i>Pamphila flava</i> , R. P. Murray, Japan ...	4
<i>Papilio Xynias</i> , Hewitson, Bolivia.....	153
<i>Prepona Xenagoras</i> , ..	153
<i>Pyrrhopyga Agenoria</i> , Hewitson, Peru...	251
<i>Stigimonota erectana</i> , Barrett, England...	8

ADDITIONS TO THE BRITISH INSECT FAUNA BROUGHT FORWARD IN THIS VOLUME.

COLEOPTERA.

	PAGE
<i>Aleochara hibernica</i> (sp. n.), Rye	175
<i>Anisotoma clavicornis</i> ..	150
<i>curta</i> , Fairm.	150
<i>Atomaria divisa</i> (sp. n.), Rye	178
<i>Bryaxis cotus</i> (Lefebvrei, Shp.).....	225
<i>Colon Barnevillei</i> , Ktz.	177
<i>Cryptophagus subfumatus</i> , Ktz.	178
<i>Euplectus Abeillei</i>	225
<i>Duponti</i>	225
<i>piceus</i>	225
<i>Homalota egregia</i> (sp. n.), Rye	176
<i>Olibrus helveticus</i> (Tournier, MS.)	177
<i>Scydmanus glyptocephalus</i>	225
<i>Sharpi</i>	225
<i>Thyamis ferruginea</i> , Foudr.....	180
<i>Trachys pumila</i> , Ill.	226

DIPTERA.

<i>Chrysotus amplicornis</i> , Zett.....	248
<i>blepharosceles</i> , Kow.	246
<i>microcerus</i> , ..	248
<i>palustris</i> (sp. n.), Verrall	247
<i>pulchellus</i> , Kow.	248

	PAGE
<i>Diaphorus dorsalis</i> (sp. n.), Verrall	198
<i>Dolichopus latilimbatus</i> , Mcq.	31
<i>mediicornis</i> (sp. n.), Verrall	32, 143
<i>puncticornis</i> , Zett.	142
<i>strigipes</i> (sp. n.), Verrall.....	143
<i>Gymnopternus chrysozygus</i> , W.	145
<i>plagiatus</i> , Lw.....	34
<i>Hydrophorus præcox</i> , Lehm.	269
<i>Medeterus flavipes</i> , Meig.....	270
<i>Porphyrops simplex</i> (sp. n.), Verrall.....	195
<i>tenuis</i> ..	197
<i>Sarcophaga adolescens</i> , Rond.	263
<i>affinis</i> , Fall.	264
<i>agricola</i> , Meig.?	261
<i>albiceps</i> , .. ?	260
<i>Atropos</i> , ..	260
<i>clathrata</i> , ..	263
<i>cruentata</i> , ..	266
<i>dissimilis</i> , ..	264
<i>hæmatodes</i> , ..	266
<i>hæmorrhœa</i> , ..	267
<i>hæmorrhoidalis</i> , Zett.	265
<i>infantula</i> , Rond.	265
<i>juvenis</i> , ..	263

	PAGE
<i>Sarcophaga laticornis</i> , Meig.	262
<i>melanura</i> , „	261
<i>nigriventris</i> , „	262
<i>nurus</i> , Rond.	266
<i>setipennis</i> , „	264
<i>similis</i> (sp. n.), Meade	261
<i>Sympycnus bifasciellus</i> , Zett.	269
<i>nigritibialis</i> , „	268
<i>Syntormon oedinemus</i> , Lw.	146
<i>Teuchophorus pectinifer</i> , Kow.	268
<i>Xiphandrium auctum</i> , Lw.	148

HEMIPTERA-HETEROPTERA.

GENUS.

<i>ACOMPOCORIS</i> , Reuter	249
-----------------------------------	-----

SPECIES.

<i>Acompocoris alpinus</i> , Reuter	249
<i>Corixa prominula</i> , Thoms.	224
<i>Gerris aspera</i> , Fieber.	223
<i>Lopus sulcatus</i> , „	186
<i>Macrocoleus tanacetii</i> , Fallén	131
<i>Myrmedobia tenella</i> , Zett.	249
<i>Nabis Poweri</i> (sp. n.), E. Saund.	250
<i>rugosus</i> , Lin.	154
<i>Pilophorus clavatus</i> , Lin.	100
<i>perplexus</i> (sp. n.), Doug. and Scott	101
<i>Salda pallipes</i> , Fab.	30
<i>pilosella</i> , Thoms.	30
<i>Sehirus picipes</i> , Fall.	154
<i>Trapezonotus dispar</i> , Stål	222

HEMIPTERA-HOMOPTERA.

GENERA.

<i>ALLYGUS</i> (g. n.), (Fieb.) Scott	169
<i>EURYBREGMA</i> (g. n.), Scott	92

SPECIES.

<i>Allygus commutatus</i> (sp. n.), Scott	171
<i>modestus</i> „ „	172
<i>Athysanus depressus</i> , „ „	95
<i>dilutior</i> , Kirschb.	99
<i>irroratus</i> (sp. n.), Scott	96
<i>obsoletus</i> , Kirschb.	97
<i>obscurellus</i> , Fall.	98
<i>piceus</i> (sp. n.), Scott	97
<i>plebeius</i> , Fall.	98
<i>sordidus</i> , Zett.	96
<i>Deltocephalus assimilis</i> , Fall.	243
<i>Falleni</i> , Fieb.	271
<i>flavipennis</i> (sp. n.), Scott.	242
<i>longicaput</i> „ „	240
<i>metrius</i> , Flor.	241
<i>Minki</i> , Fieb.	213
<i>Mulsanti</i> , „	240
<i>oculatus</i> , J. Sahlb.	274

	PAGE
<i>Dicranoneura citrinella</i> , Zett.	27
<i>mollicula</i> , Boh.	28
<i>pygmæa</i> (sp. n.), Doug.	203
<i>Eupteryx tenellus</i> , Fall.	204
<i>Eurybregma nigrolineata</i> (sp. n.), Scott.	92
<i>Graphoceræus ventralis</i> , Fall.	25
<i>Liburnia paludosa</i> , Flor.	205
<i>Thamnotettix intermedia</i> , Boh.	25
<i>nigricornis</i> , J. Sahlb.	91
<i>Preyssleri</i> , Schöff.	25
<i>Typhlocyba alneti</i> , Dahlb.	77
<i>aurovittata</i> (sp. n.), (Fieb.) Doug.	76, 157
<i>cratægi</i> (sp. n.), Doug.	203
<i>debilis</i> „ „	204
<i>gratiosa</i> , Boh.	76
<i>lactea</i> , Leth.	77
<i>rosea</i> , Flor.	77
<i>tiliæ</i> , Geoff.	79

HYMENOPTERA.

<i>Ægilips abietina</i> , Dahlb.	226
<i>subulifera</i> , Thoms.	226
<i>Allotria melanogaster</i> , Htg.	227
<i>Andricus æstivalis</i> , Gir. (?)	226
<i>glandium</i> , „	83
<i>Aphilothrix autumnalis</i> , Htg.	226
<i>Bassus peronatus</i> (sp. n.), T. A. Marshall	194
<i>Cladius Brullæi</i> , Dahlb.	42
<i>Drewseni</i> , Thoms.	228
<i>Limneria croceipes</i> (sp. n.), T. A. Marshall	194, 228
<i>Macrophya albipunctata</i> , Fall.	228
<i>Nematus abietinus</i> , Dahlb.	227
<i>albipennis</i> , Klug	227
<i>baccarum</i> (sp. n.), Cameron.	189
<i>cadderensis</i> „ „	127
<i>crassipes</i> , Thoms. ?	190
<i>crassus</i> , Fall.	227
<i>consobrinus</i> , Voll.	227
<i>dorsatus</i> , (sp. n.), Cameron	129
<i>flavipennis</i> , „ „	189
<i>humeralis</i> , Zett.	227
<i>hyperboreus</i> , Thoms.	227
? <i>latipes</i> , Vill.	228
<i>pallidiventris</i> , Fall.	227
<i>punctulatus</i> , Dahlb.	227
<i>Sharpi</i> (sp. n.), Cameron	191
<i>striatus</i> , Htg.	227
<i>Zetterstedti</i> , Dahlb.	228
<i>Pentacrita albipennis</i> , Thoms.	226
<i>pentatoma</i> , „	226
<i>Sapholytus apicalis</i> , Htg.	227
<i>Strongylogaster delicatulus</i> , Fall.	228
<i>Tetrarhaptra tetratoma</i> , Thoms.	226

LEPIDOPTERA.

<i>Ablabia argentana</i> , Cl.	85
<i>Colcophora conyzæ</i> , Zett.	104
<i>Euleia stachydalis</i> , Zinck.	158
<i>Stigmonota erectana</i> (sp. n.), Barrett	8

NEUROPTERA.

<i>Stenophylax rotundipennis</i> , Brauer	65
---	----

LARVÆ OF BRITISH SPECIES DESCRIBED IN THIS VOLUME.

HYMENOPTERA.		PAGE	PAGE
<i>Abia sericea</i> , <i>P. Cameron</i>	111	<i>Cataclysta lemnalis</i> , <i>W. Buckler</i>	102
<i>Cladius Brullæi</i> , „.....	42	<i>Cleora glabraria</i> , „.....	84
<i>Nematus cadderensis</i> (sp. n.), <i>P. Cameron</i>	127	<i>Hydrocampa nymphæalis</i> , <i>W. Buckler</i> ...	210
<i>dorsatus</i> „ „.....	129	<i>Larentia cæsiata</i> , <i>Rev. J. Hellins</i>	6
<i>luteus</i> „ „.....	130	<i>ruficinctata</i> , „.....	5
		<i>Paraponyx stratiotalis</i> , <i>W. Buckler</i>	160
		<i>Pterophorus dichrodactylus</i> , „.....	233
		<i>microdactylus</i> , „.....	234
		<i>rhododactylus</i> , <i>G. T. Porritt</i>	88
		<i>Rhodophæa suavella</i> , <i>W. Buckler</i>	13
		<i>Xylina rhizolitha</i> , „.....	140
		<i>Xylomiges conspiciaris</i> , <i>C. Fenn.</i>	84
LEPIDOPTERA.			
<i>Agrotera nemoralis</i> , <i>Rev. J. Hellins</i>	232		
<i>Aplecta occulta</i> , <i>W. Buckler</i>	67		
<i>Botys lancealis</i> , <i>G. T. Porritt</i>	277		
<i>terrealis</i> , „.....	209		

REVIEWS.

<i>Entomologische Nachrichten</i> : Putbus	44
Seventh Annual Report on the Noxious, &c., Insects of Missouri.— <i>C. V. Riley</i>	44
The Lepidopterists' Calendar (2nd ed.).— <i>J. Merrin</i>	69
North Staffordshire Naturalists' Field Club: Annual Addresses, &c.	69
The Naturalist	90
Field and Forest	90
Lepidoptera.— <i>H. Strecker</i>	141
Catalogue des Hémiptères d'Europe (2nd ed.).— <i>Dr. Puton</i>	167

OBITUARY.

<i>Henry Doubleday</i>	69
<i>Ludwig Redtenbacher</i>	238
<i>Thomas Wilkinson</i>	279

WOOD-CUTS.

<i>Psen ornatus</i> , Wings of	186
<i>Sarcophaga carnaria</i>	220
<i>melanura</i>	261
<i>nurus</i>	266

ERRATA.

- Page 24, line 14 from top, for "PUNCTIFRONS, Fall.," read "TORNEELLA, Zett."
 „ 25, „ 16 „ bottom, for "Fieb." read "Fab."
 „ 44, „ 26 „ top, for "Correspondingblatt" read "Correspondenzblatt."
 „ 46, „ 2 „ bottom, for "including" read "excluding."
 „ 226, last two lines, and page 227, first line, should be as follows:—" *P. albigennis*,
 Thomson, l. c., p. 399, 7, ? = *Encoila tomentosa*, Giraud."
 „ 239, above "SECTION A." put "DELTOCEPHALUS, Burm."
 „ 240, last line, for "concave" read "convex."

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NOTES ON THE ENTOMOLOGY OF KERGUELEN'S ISLAND.

BY THE REV. A. E. EATON, M.A.

[*Extracted from the First Report of the Naturalist attached to the Transit-of-Venus Expedition to Kerguelen's Island. Published in the Proceedings of the Royal Society, vol. xxiii, pp. 354-355.*]

The entomology of the Island is very interesting. Most of the larger insects seem to be incapable of flight. I have found representatives of the Orders *Lepidoptera*, *Diptera*, *Coleoptera*, and *Collembola*.

The *Lepidoptera* comprise a species of the *Noctuina* (as I suppose) and one of the *Tineina*. Of the first, I have not yet reared the imago; the larva is a moss-eater and subterranean; the adult is probably as large as an *Agrotis* of medium size. The species of *Tineina* is probably one of the *Gelechiidæ*, judging from the form of the palpi. Its larva feeds on young shoots of *Festuca*, and sometimes spins a silken cocoon for the pupa. The imago, of which the sexes are alike, has acute and very abbreviated wings, and the posterior pair extremely minute. In repose, the antennæ are widely separated and almost divaricate. When the sun shines the adult is active, and, if alarmed, jumps to a distance of two or three inches at a time. During its passage through the air the wings are vibrated.

The *Diptera* are represented by species of the *Tipulidæ* and *Muscidæ*. There are three of the former family. One of them is a species of *Cecidomyiidæ*, which is abundant in mossy places, and presents no marked peculiarity. Another seems to be a degraded member of the *Tipulidæ*. The antennæ have six joints, the palpi two; the wings are ligulate and very minute. It possesses halteres, and the female has an ovipositor enclosed in an exposed sheath. Although it is unable to fly, it lives upon rocks in the sea which are covered at high water, and there it deposits its eggs in tufts of *Enteromorpha*. The third species has full-sized wings; it was caught in the house. The indigenous

Muscidae are very sluggish in their movements, and are incapable of flight. Four species are common. One of them is abundant on *Pringlea*, crawling over the leaves. When it is approached, it feigns to be dead, and, tucking up its legs, drops down into the axils of the leaves; or, if it happens to be upon a plane surface, one need only look at it closely, and it throws itself promptly upon its back and remains motionless until the threatened danger is over, when it gradually ventures to move its limbs and struggle to regain its footing. Its wings are represented by minute gemmules, and it possesses halteres. The ovipositor is extended, its apical joint alone being retracted. The larva feeds upon decaying vegetable matter. Another species occurs on dead birds and mammals, as well as beneath stones near the highest tide-mark. It is completely destitute of even the vestiges of wings and halteres. It and the preceding species are rather smooth. A third species, slightly hairy, is common amongst tide-refuse and on the adjacent rocks, which are coated with *Enteromorpha*, on which plant, *inter alia*, the larva feeds. It has very small triangular rudiments of wings, slightly emarginate near the apex of the costa, and possesses halteres. The fourth species occurs amongst grass growing on the seashore and also in Shag-rookeries. Its linear and very narrow wings are almost as long as the abdomen. It can jump, but cannot fly.

A *Pulex* is parasitic upon *Halidroma*, and one (possibly the same) on *Diomedea fuliginosa*.

Coleoptera are not uncommon. The larger species seem to have their elytra soldered together. There is a small species of the *Brachelytra*.

Several species of *Nirmidae* have been obtained.

Two *Poduræ* (one black, the other white) are plentiful.

There appear to be few species of spiders, though individuals are numerous. Penguins and some of the other birds are infested with ticks. The remaining *Arachnida* are related to *Cribates*.

NOTES ON JAPANESE *RHOPALOCERA*, WITH DESCRIPTION OF A NEW SPECIES.

BY THE REV. R. P. MURRAY, M.A.

Since the publication, in December and January last, of my paper on Japanese butterflies, I have become possessed of a little more material, and venture to lay the following additional notes before the readers of Ent. Mo. Mag.

Colius Hyale, L.—I now possess a single specimen of this insect from Japan. It does not appear to differ from European specimens of *C. Hyale*, except in its somewhat larger size; and I have no doubt that it belongs to that species. I believe, however, that it is the form described by De l'Orza as *C. Simoda*.

Pieris Melete, Mén.—This is a most variable species, and I have no doubt that a long series of specimens, collected at different seasons of the year, and from various localities, would prove most interesting. Some of the females are much darker than others. The insect varies much in size; the smallest ♂ in my cabinet expands 2" 4", the largest (also a ♂) 3".

Leucophasia amurensis, Mén.—Taken in September on "a dry mountain slope bare of trees," at the base of Fujiyama. This species is usually considered to be a variety of *L. sinapis*, L., but the very peculiar elongated wings seem to entitle it to specific rank.

Lycæna Argus, L.—Taken, I believe, in the same locality as the last mentioned species.

Danais Tytia, Gray.—The existence of this W. Himalayan species in Japan (previously noticed by Motschoulsky) is very curious. *Papilio Agestor*, Gray, which so closely mimics it in its Indian home, has not yet, so far as I know, been detected in Japan.

Lethe, Hübn.—I fear that this genus will for some time prove a stumbling block to Japanese lepidopterists. As far as I at present understand it, the Japanese species should stand as follows:—

L. Sicelis, Hew.—The males of this species may be distinguished by the tuft of long silky hair arising from near the extremity of the hind-wing cell.

L. Diana, Butler.—Male with long silky hair arising from the inner margin of fore-wing.

L. Whitelegi, Butler.—The type in Brit. Mus., a male, is in a very worn condition. I possess two females, apparently referable to this species. If it were not that the type is, according to Mr. Butler, a male, I should have considered my specimens as females of *L. Diana*. They agree very fairly with Bremer's figure of *Las. Maacki*, except that the marginal spots on upper-side of hind-wing are obsolete, or nearly so. This latter species is cited by Motschoulsky (Bull. de la Soc. Imp. de Moscou, 1866) as synonymous with his *Satyrus marginalis*, which is enumerated in Kirby's catalogue as doubtfully distinct from *L. Diana*, Butl.

Neope sp. nov.?—Three specimens of this species were sent home by Mr. Pryer, one of which is now in my possession. I believe it to be undescribed, but as my specimen is in very poor condition, I hardly like to describe it.

Vanessa xanthomelas, W. V., or *V. polychloros*, L.?—The Japanese specimens in the perfect state seem to agree best with *V. xanthomelas*, but I learn that the larva is an elm-feeder, herein agreeing with that of *V. polychloros*. Species of *Salix*, to which, in Europe, *V. xanthomelas* is supposed to confine itself, are numerous in Japan. A Himalayan example in my collection, referred by Mr. Moore to *V. xanthomelas*, seems to me much more like *V. polychloros*. I am very doubtful whether the two species be really distinct.

Ismene Benjamini, Guér., var. *japonica*, Mihi.—Differs from Indian examples in wanting the dark shade which suffuses all the outer portion of the fore-wings in typical examples.

Pamphila Sylvanus, Esp.—Japanese specimens attain a much larger size than European. The largest in my collection expands 1" 9".

PAMPHILA FLAVA, sp. n.—*Alis suprâ brunneis, flavo-notatis: subtus pallidioribus, posticis flavis, brunneo-maculatis. Antennis hamatis.*

Hab.: Japonia.

Exp. alar., 1" 2"—1" 4".

Upper-side. Fore-wings dark brown: base dusted with yellow: costal, inner-marginal and median yellow streaks from the base, the latter expanding into a rather large yellow spot at the end of cell, above which are two yellow dashes, bordering the first sub-costal nervule. Beyond the middle is a conspicuous yellow band, divided into spots by the veins: the fourth and fifth are displaced, as in the allied species, and situated much nearer the hind-margin. Hind-wing: dark brown: a yellow spot near base, and a smaller one above it, near the costa: a conspicuous yellow band beyond the middle, reaching from sub-median to sub-costal nervures. The small costal spot before mentioned may be considered as an upward continuation of this band. The brown portions of both wings are more or less dusted with yellow. Fringe yellow, cut with fuscous, especially on fore-wing.

Under-side. Fore-wing: paler than above: only the costal streak from base present, which reaches to the sub-costal dashes corresponding to those existing on the upper surface: discoidal nervule bordered, often broadly, with ochreous, along the basal half of its course: apical portion of hind-margin ochreous. Hind-wing: brown, thickly dusted with ochreous except at anal angle, where is a large brown patch, extending in a narrow streak to the base. Spots as above, but with an additional basal spot above the cell. The transverse band is bounded outwardly by a more or less distinct zigzag brown line.

Allied to *P. Augias*, L.

This is the species referred to in my former paper as *P. Dara* (?), Koll. Further investigation has convinced me that it is distinct; nor can I find it described by any other author. It seems to be a common species near Yokohama.

NATURAL HISTORY OF *LARENTIA RUFICINCTATA*, GN., AND
L. CÆSIATA, W. V.

BY THE REV. J. HELLINS, M.A.

I was very glad to receive eggs of *ruficinctata* last August from Mr. Carrington, and in March, having failed to bring my larvæ through the winter, I was still more glad to have my loss made good by Mrs. Hutchinson; and I am now able to give a tolerably full account of this species, and to compare some of its stages with *cæsiata*. The result of this comparison will be to show that they stand very much in the same relation to one another as exists in the genus *Melanippe* between *rivata* and *subtristata*.

I received eggs of *ruficinctata* on August 15th; the larvæ hatched on 21st, and at first fed well on flowers of various stonecrops and saxifrages, but when the flowers were past, would not touch the leaves; however, Mrs. Hutchinson found that the leaves of *S. hypnoides* (a species I could not obtain) were readily eaten, and on that plant kept her larvæ through the winter, and on February 19th, she kindly sent me some of them, then just moulting for the last time; these spun up during the last week of March and the first ten days of April, and the first moth came out yesterday, May 17th; from the moths of this first flight the larvæ are found full-fed (and have been sent to Mr. Buckler) in July; and the second flight of moths is out at the beginning of August: *ruficinctata* therefore is double brooded, one brood going through all its transformations in the period between the middle of May and the beginning of August, and the other taking up the rest of the twelve months, chiefly in the larval stage.

The egg is rather long-oval in outline, full, with one end blunted; the shell pitted all over with irregular reticulation; the colour (when I received the eggs from Mr. Carrington) light bright red; afterwards dingy; the young larva is pale olive, with broad dorsal and finer waved sub-dorsal darker lines; head shining black, the blackish dots each set with a long bristle somewhat clubbed at the tip: in about a month (with the second brood, that is) the dorsal pattern begins to appear, the colour otherwise being dark brownish: the larvæ that came to me in spring were about half grown, with the dorsal pattern well developed. The full grown larva is six-eighths of an inch long, in figure thick set, tapering from the fifth segment to head, which is small and rounded, and tapering, but not so much, from the tenth to tail; when viewed sideways rather flattened; divisions well marked; skin wrinkly; the usual dots distinct as minute raised warts with longish hairs. In colour there are three varieties known to me:

- A. Ground colour on back dark purplish-grey, with a dorsal row of seven Λ s pointing forwards on segments 5–11, and sometimes an eighth and ninth Λ —but small and imperfect—on segments 4 and 3; these marks are outlined by very dark velvety brown lines, and of the space enclosed by them the apex is pale yellow, and the base pale rose-red, the dorsal line appearing here as a short stripe of deeper opaque red; on segments 2, 3, 12, and 13, the dorsal line is continuous and dark reddish; the head darker than the ground, and freckled; the belly dull reddish-brown; the spiracular region tinged with ochreous; the small round spiracles blackish.
- B. Ground colour rather subdued green, with the dorsal markings rather brighter than in A; the head freckled with brownish; belly pale green; spiracular line ochreous.
- C. Ground colour pale olive-green, but varied with a suffusion of dark rich red on either side of the back, most intense where it touches the pale yellowish spiracular line; the belly dull greenish.

The pupa, enclosed in a very slight cocoon on the surface of the soil, is barely half-inch long, smooth and cylindrical, tapering off gradually to the tail, which ends in a spike with a fine forked spine; the skin very glossy; the colour pale golden-brown, darker towards the tail.

Some years ago I reared *cæsiata* from the egg, but preserved no record of the egg, or young larva; at that time I bred the moths in the end of May and beginning of June, but I do not know for certain whether this shows there are two broods, or only that the moth has a long flight; Mr. J. Batty, who has more than once sent me the larvæ, tells me he believes there is but one brood of moths, most abundant in July; anyhow, from these the larvæ are hatched in August, feed chiefly on whortleberry, but will also eat ling, hibernate, and do not feed up till May, some even holding on till June.

The larva when full grown is seven-eighths of an inch long, not so stumpy to look at as *ruficinctata*, more cylindrical, tapering less rapidly to the head, which, however, is small and rounded; the bristles emitted by the dots shorter than in *ruficinctata*. In colour there are two varieties known to me:

- A. Ground colour on back deep red-chocolate; a dorsal row of seven Λ s pointing forward on segments 5–11, with imperfect ones on 4 and 12, much resembling those of *ruficinctata*, being outlined with dark brown, and the interior being also yellow in front and pink behind, but they are both more extensive in size, and brighter in tint; the segmental divisions are tinged with green; the dorsal line is almost continuous, but varying in colour, being brownish-

red or more pinkish, in agreement with the surrounding skin; at the segmental divisions it is bordered by two short whitish dashes, as are also two pairs of fine lines which run on either side of it, so that at the divisions there is quite a marked feature in these white dashes; the spiracular line is clear and distinct, in colour white or pale yellow; the spiracles are black; the head dark reddish, freckled with greenish; the belly dark brown.

B. Ground colour a deep bright green, dorsal markings very bright by contrast; head as before; belly full green; spiracular line white, or pale yellow; anal flap and anal legs purplish. This is a very beautiful form of the larva, and seems to be developed at the last moult; an example now feeding was quite reddish-brown till it moulted.

The pupa, enclosed in a slight cocoon, but apparently more complete than that of *ruficinctata*, is about half-inch long, cylindrical, and rather slender; the eyes rather prominent; the skin very glossy; in colour almost olive on the wings; golden on the abdomen; the eyes, abdominal rings, and end of tail dark brown. I should much like to hear some decisive statements on the question of this species being single or double brooded.

Exeter: 18th May, 1875.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from Vol. xi, p. 196).

STIGMONOTA NITIDANA, Fab., and *WEIRANA*, Dougl.—I feel now in a position to give a decided opinion as to the distinctness of these two species. My friend, M. E. L. Ragonot, has been able to rear both species at Paris, and has, with his usual kindness, communicated specimens, and information on both, to me. In his specimens of *Weirana*, the markings, which are faintly visible in some few of our native specimens, become comparatively bright and distinct, and form excellent distinguishing characters.

In *nitidana* the pale fascia beyond the basal patch is elbowed *above the fold*, consequently its angle is nearer to the costal than to the dorsal margin, and its *inferior* arm is the longer.

In *Weirana* the fascia is angulated *below* the middle of the wing, the angle is more obtuse, and its *superior* arm is the longer.

In *nitidana* the face is whitish, and the markings on the fore-wings bright and silvery.

In *Weirana* the face is pale grey, and the markings duller and more leaden.

In *nitidana* the hind-wings are pale at the base, becoming darker towards the hind-margin.

In *Weirana* they are entirely dark grey. In this species, also, the fore-wings are broader and more rounded than in *nitidana*, and it is altogether a larger, duller, and more smoky-looking species.

M. Ragonot writes me: "*Nitidana*, whether captured about oaks "or bred from the cocoons, is quite constant in colour and size, and is "smaller than *Weirana*, and narrower winged. *Weirana*, bred from "beech, is quite constant in size and colour, though some have more "distinct markings than others."

I think, therefore, that their distinctness is fully proved, and in this Prof. Zeller, after seeing M. Ragonot's specimens, concurs.

The specimens of *flexana* sent me by Zeller, although more brightly marked than even the Parisian specimens, are also clearly identical with *Weirana*, and it will therefore be necessary to adopt *flexana*, Z., as the name of this species, as it has one year's priority over *Weirana*, Dougl.

The climatal variation of this species is curious and very interesting, and deserves further investigation.

From Lord Walsingham I have received, for examination, a beautiful *Tortrix* belonging to this genus, but apparently distinct from any described species, and so well marked that I venture to describe it as a novelty.

STIGMONOTA ERECTANA, *sp. n.* Alar. exp., $4\frac{1}{2}$ lines.—Head, palpi, and antennæ, dark brown, thorax olive-brown. Fore-wings rich dark brown, paler towards the base, and with a faint olive tinge. Markings silvery-white, consisting of a perpendicular dorsal blotch reaching two-thirds across the wing, immaculate, sharply defined interiorly, squared at the apex, and slightly toothed exteriorly, and four pairs of costal streaks, the second pair produced into a narrow angulated fascia beyond the dorsal blotch, and reaching the anal angle, the lower arm being nearly perpendicular to the margin, slightly dilated, and brilliantly white. Between this and the dorsal blotch is the almost invisible ocellus. There is a square pale spot in the cilia below the apex, the remainder of the cilia being grey with a dark line at the base.

Hind-wings very pale grey at the base, darker at the margin and on the nervures. Cilia white.

Of the size and form of *internana*, and similar in markings, except that the dorsal blotch is *erect*, and contains no dark lines.

Taken by the Hon. Beatrice de Grey among broom (*Spartium scoparium*) in Norfolk.

(To be continued).

DESCRIPTION OF A NEW SPECIES OF *NEMATUS* FROM CORSICA.

BY P. CAMERON, JUN.

NEMATUS MARSHALLI, sp. n.

N. nitidus, luteus, antennis longis, capite, ore excepto, meso- et metanoto, tarsisque posticis, nigris; alis fumatis, stigmate testaceo.

Long. fere 3 lin.

♀. Antennæ as long as the body, black, the 3rd and 4th joints equal. Head black, shining, covered very sparingly with down; pronotum luteous; tegulæ pale luteous. Abdomen almost shorter than the head and thorax, entirely luteous, except the basal segment, which is broadly black in the middle; the apex acuminate, hairy, the sheaths of the saw black. Feet pale luteous, the apices of the posterior femora (faintly) and tibiæ, as well as the tarsi, black; the posterior calcaria dark luteous moderately long; the tibiæ thickened at the end, and grooved inwardly. The posterior legs are longer than the body. Wings smoky, the nervures deep black; the costa and stigma testaceous. The 1st sub-marginal nervure is absent; the 2nd recurrent is received in front of the 2nd sub-marginal; the 3rd sub-marginal cell is much broader at the apex than at the base.

This insect is not unlike *Nematus fumipennis*, Ste. (*ventralis*, Htg., nec Pz.), but, not to mention other marks of distinction, that species has the wings much darker coloured, and the stigma is black at the base.

Taken in Corsica by the Rev. T. A. Marshall, after whom I have much pleasure in naming it.

136, West Graham Street, Glasgow:

February, 1875.

DESCRIPTION OF THREE NEW BUTTERFLIES.

BY W. C. HEWITSON, F.L.S.

LEPTALIS MEDORINA.

Upper-side: male, dark brown. Anterior wing crossed by two macular bands of yellow: the first of two spots at the middle, the second sub-apical of three spots. Posterior wing with the costal margin (except a polished spot of white) and a central band which is united with it yellow.

Under-side: yellow. Anterior wing with the central band of spots as above: the inner half polished and marked by a white spot. Posterior wing irrorated with brown and marked by eight or nine white spots.

Exp., $2\frac{1}{10}$ inch. Hab., Bolivia (Buckley).

In the collection of W. C. Hewitson.

Nearly allied to *L. Medora*, from which it differs on the upper-side by having the central band of the anterior wing broken: on the under-side by the white spots of the posterior wing.

LEPTALIS HIPPOSAS.

Upper-side: male, black. Anterior wing with a small spot before the middle, a band of three spots, two of which are bifid at the middle, and a sub-apical band of three spots all white. Posterior wing with the costal margin (which is polished) and a band at the middle (ending near the middle of the outer margin in a separate triangular spot) white.

Under-side: lilac-grey irrorated with dark brown. Anterior wing with the white spots as above, the inner margin polished and marked by a white spot. Posterior wing tinted with yellow in the middle, and marked by several white spots: one of them near the costal margin, a central band of ten spots, and one below them.

Exp., $2\frac{3}{20}$ inch. Hab., Ecuador (Buckley).

In the collection of W. C. Hewitson.

EREBIA MERULA.

Upper-side: dark brown. Anterior wing with two black spots near the apex, one large (as if composed of three ocelli), and marked by three minute white spots placed in a triangle: the other spot (which is below it) small and marked by one minute white spot: the whole bordered by pale brown.

Under-side: as above.

Exp., 2 inches. Hab., New Zealand.

In the collection of Herman Strecker.

This species is in form more like *Argyrophenga* than it is to the European species of *Erebia*, amongst which it resembles most *E. Erias* and *E. Hewitsonii*. I am indebted to the kindness of Mr. Strecker of Pennsylvania for the pleasure of adding another species to the meagre list of New Zealand butterflies.

Oatlands, Weybridge,
April, 1874.

ON THE FONDNESS OF ANTS FOR CERTAIN HOMOPTERA.

BY PROFESSOR FEDERIGO DELPINO,
Of Vallombrosa, near Florence.

[Translated from the *Bullettino della Società Entomologica Italiana*,
1875, pp. 61-64.]

In 1873 in the garden at Paterno, near Vallombrosa, were two very robust plants of cardoon (*Cynara cardunculus*), distant from one another about 40 steps. A little further, in another plot, were several plants of artichoke (*Cynara scolymus*).

Towards the middle of May, on examining the two plants of cardoon, I remarked on both of them a tolerable number of larvæ of

Tettigometra in various degrees of development, which were dwelling under the protection of a *Formica*, but not of *F. pubescens* (which I had previously* observed taking charge of *Tettigometra virescens*), but of a smaller species. The idea occurred to me to see if there were any similar larvæ on the artichoke plants, and, in fact, I found some there, but these were under the protection of a third species of ant, a *Myrmica*.

In June I revisited the cardoon plants. The *Tettigometræ* had considerably increased in numbers, and this time they were guarded by *Formica pubescens*, which had driven away the smaller species of *Formica*, which I had noticed there before. Again I noticed that the *Tettigometræ* were in various stages of development.

In July the larvæ of *Tettigometra* had increased in numbers more than ever, and were still under the protection of *Formica pubescens*. The protected individuals showing still in this month various degrees of development. This circumstance had led me in the previous year to the conjecture that like the *Aphides*, the *Tettigometræ* were capable of parthogenesis; but this conjecture was erroneous, since I observed this time scattered here and there on the cardoon plants some heaps of eggs of *Tettigometra*.

Towards the end of August, revisiting these plants, I was at once struck by several unexpected phenomena. Mixed along with the larvæ of the *Tettigometra*, which, as is well known, are green, there was a profusion of black larvæ, differing not only in colour, but also in form, and besides which, they were very sluggish, and with little or no power of leaping. Perfectly intermixed with the *Tettigometræ*, and living in the greatest harmony with them, these were also under the protection of *Formica pubescens*, to which they exuded from the anus from time to time a drop of saccharine liquid. My first impression was that I had here a singular instance of larval dimorphism; but, on more mature consideration, and after having duly reflected on the great difference in the form of the body and in their agility, I came to the conclusion that I had before me the larvæ of another species of *Cicadellina* enjoying, like the *Tettigometræ*, the same harmonious relations with the ants. I was not, however, able to ascertain with certainty to what genus these table-companions and allies of the *Tettigometræ* should be referred. But I noticed several times, and in both the cardoon plants, the presence of adult *Cicadellina*, winged, brown, and of comparatively large size. These had precisely the appearance and characters of the genus *Issus*, and were in all probability the parents of the black larvæ.

* Bullettino della Società Ent. Italiana, 1872, p. 343.

The flocks of cattle of these ants were thus not only increased in numbers but also in species. Another thing which somewhat surprised me, was that the ants, in order to be easily within reach to assist and defend their cattle, had excavated in several parts of the stalk and of the larger ribs of the leaf true guard-houses of an ingenious structure. Each had an opening sufficiently wide to admit the passage of the largest *Tettigometra*. This opening led to a gallery excavated in the pith of the stalk to the depth of four inches or more. Besides this main opening, there were hollowed out two or three very small holes, with what object I cannot say, but probably with the view of ventilating the domicile, a current of air passing from the larger opening to the smaller ones. The greater part of the *Tettigometræ* remained outside these shelters, but some had penetrated within and had also deposited eggs there.

The cardoon plants, strange as it may seem, which had been continuously punctured for months by the larvæ of *Tettigometra* and *Issus*, and which were also pricked and sucked by the ants, as I had several times observed, and which had long galleries excavated in the pith, were notwithstanding in a most vigorous state of vegetation and fruiting most copiously, thus showing that they suffered little or nothing from the presence of so many visitors.

The affection of the individuals of *Formica pubescens* for these colonies of *Tettigometra* and *Issus* is truly great. It was evidently with the intention of watching better over them that these habitations had been excavated. The lives of these cattle of theirs are exposed to the attacks of many enemies. I observed spiders, *Coccinellæ*, and ichneumons. I found one ichneumon of proportionate size, dead, with its abdomen torn, which had probably been the work of these guardians.

On the whole it would appear from these phenomena that in *Cynara cardunculus* and *C. scolymus*, which is probably only a variety induced by cultivation, we have a true species of European Formicarium, comparable to a certain point and analogous to the *Myrmecodium* and *Hydnophyllum* of Asia, and to the *Tococa* and *Majeta* of America. One thing seems certain, that on a plant on which the ants have fixed their abode, caterpillars and other foes to vegetables cannot also occur. Hence we have here an example, unique as far as we know, of a "quadruple alliance" between four different beings, that is between *Cynara cardunculus*, *Tettigometra*, *Issus* and *Formica*.

May 12th, 1874.

Peronea Lipsiana, &c., at Wither Slack.—On the 19th April, the weather being hot and fine, I paid a visit for a couple of days to my favourite hunting-grounds, in company with my friend Mr. Threlfall. *Polyommatus Argiolus* was plentiful on the hollies, and many *Gonepteryx rhamni*, both males and females, were flying about on the moss side; during the hot sunshine *Dasystoma salicella* flew briskly about, whilst *Micropteryx purpurella* and *unimaculella* were in fine condition amongst the birches. *Butalis incongruella* was started several times, but it seemed scarcer than usual; of *Peronea Lipsiana* we found two well-marked specimens, also two *Depressaria capreolella*, four *Gracilaria phasianipennella*; a few *Amphisa prodromana*, *Peronea mixtana*, *Cnephasia lepidana*, *Semioscopis avellanella* and *Steinkellneriana*, all had a fly in the hot morning sun. *Lobophora lobulata* was sticking on the trunks of the trees; *Eupithecia pumilata* was quite common and very fine. The rare Dipteran, *Empis borealis*, was hawking about after flies and moths, occasionally worrying one another; the local and rare *Tipula alpina* was in its favourite haunt on the rocks, and I pointed out the place to my young friend Mr. Threlfall, lest its habitat might be lost when I leave these hunting-grounds for the unknown ones.—J. B. HODGKINSON, 15, Spring Bank, Preston, Lancashire: April 25th, 1875.

Capture of Micropteryx salopiella, &c., at Wither Slack.—I revisited Wither Slack on the 2nd May; it was a bitterly cold day, and all I could obtain was a solitary *Micropteryx salopiella*. The next day there was a little sun, and I captured nine more: when fine it is a charming species. I did not meet with a single specimen of *M. Sparmannella*; I saw single specimens of several *Tortrices*, such as *Clepsis rusticana*, *Anchylopera unguicella*; and *Glyphipteryx Haworthana* was common amongst the cotton-grass, and I met with one fine *Gracilaria phasianipennella* (hibernated, I suppose). Several species of *Ornix*, *Neptacula*, and *Lithocolletis* were out, and I noticed some very young larvæ of *Pterophorus tephradactylus* on the golden-rod; I am told that the larva of this species feeds up in the autumn in the south of England.—ID.: May 10th, 1875.

The first white butterfly—which is it?—Many may be disposed to stare at such a simple question, but my reason for putting it is this:—Writing to Professor Zeller on the 23rd April, I happened to mention that I had seen *Pieris rapæ* on the wing in Scotland on the 16th, 18th, 19th, and 20th of April. In his reply came the observation, “I am struck with your remark that you have seen *Pieris rapæ* on the wing—with us the first butterfly which emerges from the pupa is *P. napi*, and it is not for two or three weeks later that *P. rapæ* makes its appearance. Perhaps you have written the wrong name, or is the matter reversed in Scotland? I begin, however, no longer to be surprised when I find that one’s experience gained in one locality would prove false if applied to other situations.”

My English readers will not be surprised to hear that I assured Professor Zeller “that, in England as well as in Scotland, *rapæ* always precedes *napi*—I should say, on an average, by ten or fourteen days.” I confess I have not yet seen *napi* this year.—H. T. STAINTON, Mountfield, Lewisham, S.E.: May 11th, 1875.

Description of the larva, &c., of Rhodophæa suavella.—On May 27th, 1874, I

had the pleasure to receive several larvæ, which proved to be this species, found in Herefordshire by Dr. J. H. Wood, who also most kindly furnished me with many interesting particulars of their habits.

The *young* larvæ were detected on stunted sloe bushes, at first feeding on the leaves under a whitish web, and on becoming larger they constructed along the branches silken galleries more or less covered with their long narrow pellets of frass, neatly arranged side by side.

As they occurred on a sheep-walk, wool was found adhering to the bushes and sometimes to the webs of the larvæ, thus forming a rather tangled mass; faded remnants of leaves, silk, and wool being matted together, and amongst all this their galleries lay, making it difficult to trace them; not that the presence of wool seemed to be necessary, but was only worked through when the larva found it in their way, many of the galleries being quite free from wool.

The full grown larva, when stretched out, varies from a little over five-eighths to nearly six-eighths of an inch in length, cylindrical, slender, tapering but very little in front, though the head is a trifle less than the second segment, while from the eleventh to the anal extremity it tapers gradually; the head in outline is full and rounded, and its surface roughened; each segment beyond the fourth is sub-divided across the back by a deep wrinkle into two portions, the greater portion being in front, another wrinkle sub-divides the hinder portion, but only on the sides of the segments; the spiracular region is inflated and puckered; the ventral legs are much beneath the body.

The colour of the roughened head is dark brown, with the base of the papillæ and a transverse streak above the mouth brownish-grey, the surface glistening; the plate on the second segment and that on the anal tip are both black and shining, the rest in the young stage rather olive-brown, afterwards becoming deep chocolate-brown; the skin smooth but without gloss, the ventral legs semi-transparent, the anterior legs spotted with black; the ocellated spot on the side of the third and twelfth segments is brownish-grey with a black centre, the hair from it being longer than that which proceeds from each of the usual tubercular situations, but all the hairs are alike in being dark brown, fine, and pointed; the small circular spiracles are of the ground colour.

By the 19th of June the larvæ had spun themselves up amongst the twigs of sloe in greyish silken cocoons, one of which, on the 22nd of the month, I cut open, and found the pupa to be three-eighths of an inch in length, of moderate plumpness, thickest in the middle; the wing-cases long, the abdomen bluntly tipped and terminating with seven most minute bristles curved at their extremities: in colour it was a deep mahogany-brown, the abdominal divisions darker brown, the whole surface very glossy. Four moths were bred on July 19th and 20th.

Another fact in the economy of *suavella* remains to be mentioned, that it is not confined to sloe, but is also found on hawthorn bushes; Dr. Wood having taken some larvæ from them on a common, which were kept separate, and finally produced this species. He also noticed in the instance of two or three larvæ that had been disappointed in pupating, and were wandering about amongst the twigs of sloe, that they had become tinged with greenish, and wanted earth to make up in.—WILLIAM BUCKLER, Emsworth: May 13th, 1875.

Probable discovery of the imago of Helicopsyche in Europe.—In vol. ii of this Magazine, p. 252 (April, 1866), Dr. Hagen announced that the imago of a Trichopterous insect, of which the larva manufactured the form of cases known as *Helicopsyche*, had been bred in North America, and gave figures and characters (the spur-formula was erroneously given as 2, 4, 4, it should have been 2, 2, 4). But no known European insect agreed generically with this, although *Helicopsyche* cases occur in the South of Europe. Very recently Prof. Costa, of Naples, forwarded to me a few *Trichoptera*, and among them is what I believe to be *Helicopsyche*; although the number and conditions of the individuals are not such as to enable me to make the dissections with the exactitude I could wish. It is a small, black, intensely pubescent insect, agreeing with the American species in palpi, spur-formula, &c., and, I think, also in neuration, though I am obliged to leave this somewhat uncertain for want of materials. Decidedly it belongs to no hitherto known European genus.—R. McLACHLAN, Lewisham: April 5th, 1875.

Capture of Tropistethus holosericeus at Riddlesdown.—On the 17th April I spent two or three hours in shaking the moss that grows under the juniper bushes at this place, but the only good species of *Heteroptera* I saw was *Tropistethus holosericeus*, Scholz, and of this but two examples, both of them mutilated. Indeed, such was the condition of nearly all of the few hibernated *Hemiptera* I found; this result, and former experience of hunting in winter-quarters in April, lead to the conviction that to obtain quantity and quality the search should not be delayed beyond March. The species is scarce, and the locality for it new.—J. W. DOUGLAS, Lee: April 27th, 1875.

Capture of Ulopa decussata, ♀.—At the same time and place as the foregoing, among the small bits of earth resulting from the shaking of moss, I caught sight of a Homopterous form lying motionless on the paper. This at first I took to be the common *Paropia scanica*, and was inclined to throw it away, but the small size and dark colour (the latter exactly that of the earth on which the insect rested) induced me to inspect the creature closely, and by the rounded form of the head I then saw I had made the acquaintance of a stranger. Mr. Scott says it is *Ulopa decussata*, Germ., and I believe he is correct. Fieber puts this as the ♀ of *U. trivia*, Germ., of which only a single British example, in the collection of Mr. Dale, is known (E. M. M., vii, 272).—ID.

Notes on Mr. Scudder's "Historical Sketch of the Generic names proposed for Butterflies."—Mr. Scudder has kindly sent me the above valuable contribution to the Study of Nomenclature, and I think all entomologists must agree that, as regards the painstaking manner in which the subject is treated, it does him infinite credit; but, at the same time, I feel satisfied that he will not be altogether followed; I should, personally, be disinclined to agree with him in every point, for the following reasons:—

1st.—I am sure that at the outset Mr. Scudder has made a great mistake in being guided in his choice of types by the purely fanciful or accidental restrictions of genera subsequent to their institution. To put an extreme case, we will suppose that A describes a genus in the Linnean sense (that is, containing many genera); a

short time afterwards. B publishes a list of species collected by himself during a summer trip, among them he mentions a species originally quoted amongst the representatives of A's genus; according to Mr. Scudder, B thus accidentally fixes the type of A's genus, and becomes famous; this may sound like nonsense, but substitute catalogue list for collector's list, and this is precisely what Mr. Scudder has done.* I can see no reason why, in a question of types, the restrictive system should not be thorough, therefore I think Mr. Scudder should look up all the entomological pamphlets and serials issued since the time of Linnæus, and see if he cannot find an earlier restriction of such groups as *Papilio*, *Pieris*, or *Hesperia*. I feel quite hopeful of his success.

2nd.—I regret to have to say it, but Mr. Scudder is not quite consistent; he objects to one genus on the ground of its not having been characterized (see p. 250), whilst he sinks another because its type has previously had an uncharacterized generic name applied to it (*Anchyphlebia* for instance); he, moreover, occasionally rejects a genus for another reason, the case being as follows:—A describes a genus in which he places three or four species; B describes the same genus with one or two additional species, and under another name; C sinks B's genus very properly as a synonym of A's; D finds that B's genus contained heterogeneous material, and founds a new genus for one or two of the species included in B's group: in comes Mr. Scudder at this point, and upsets D's genus as a synonym of B's† (as examples, see *Callitæra*, *Herpænia*, and *Nychitona*).

Mr. Scudder departs from his own rule in the case of *Pieris*, for in 1805, as he himself shows, this genus was restricted, and *P. rapæ* was omitted from the list of species; yet, according to Scudder, *P. rapæ* may be considered the type.

3rd.—If we were to accept all the genera which are permitted to stand in the 'Historical Sketch,' we should be obliged to separate species which differ in no structural characters, and thus genera would become (as some entomologists assert that they are) purely artificial and unnatural conveniences for grouping together a small number of allied species.

4th.—It is not reasonable to accept, as the type of a genus, a species to which the author's diagnosis is not at all applicable; therefore Mr. Scudder's views of *Hesperia* and *Lasiommata* cannot be adopted.

5th.—In some instances the original, and at other times the corrected, spelling of certain names is to be preferred; therefore, I should suggest that *Pinacopteryx* and *Pyrisitia* should not be altered to *Picanopteryx* and *Pyristia*, and that the incorrect forms *Daptonoura*, *Eulaceura*, and *Mitoura*.‡ should not be restored to the genera *Daptonura*, *Eulacura*, and *Mitura*. Mr. Scudder justifies the restoration of the spelling *Mitoura* on the plea that "it is derived from 'Mitos' and 'oura,'" but I think when Mr. Rye made the correction he was fully aware of this fact.

6th.—Although notes are inserted in the 'Sketch' up to March, 1875, several of my own genera are omitted:—

PALÆONYMPHA, Trans. Ent. Soc., 1871, type *P. opalina*.

ANCISTROIDES, " " " 1871, " *A. longicornis*.

PSEUDERESIA, " " " " " *P. catharina*.

Probably other authors may be able to add to these desiderata.

* See *Xenica* and other genera; of course I feel were the shoe pinches my own corns first.

† I may here call attention to Scudder's notes on the genera *Pterourus*, *Tanaoptera*, and others.

‡ I only quote these as examples.

In conclusion I would add that, as one who has a great regard for Mr. Scudder, I offer these remarks in no captious spirit ; indeed, I look upon all scientific criticisms as offered in a professional, and therefore purely friendly, character ; and I should be exceedingly sorry to think that even my adversaries as entomologists were not my friends as men.—ARTHUR G. BUTLER, 17, Oxford Road, Ealing : 19th April, 1875.

On killing and preserving Hymenoptera.—The neglect of these insects has, to a certain degree, a reason : viz.,—that collections of them, such as one generally sees, present anything but a charming picture, as the insects are unequally pinned, some high, some low, with antennæ, legs, and wings stretched out in all directions, or, on the contrary, pressed to the side like the limbs of a mummy. The neglect on the æsthetic side is also a great disadvantage in a scientific point of view, as it increases the difficulties, great enough already, in naming the species. For instance, how is it possible to ascertain the distinction between the veins of the wings if the wings lie on the top of each other on the body ; or, how can one examine the structure of the meta-thorax and the abdomen, if these parts are covered by the wings ; or the characteristic mark of the legs (for instance, the marks on the fore-leg of many male *Megachile*, &c.), if the tibiæ lie on the thighs, or the legs are all contracted ? What a nuisance it often is to determine the species or genus of such a creature ; whereas, it could be told in a moment if the specimen was in a good state of preservation.

To obviate this evil, and to cause the care in treatment which is due to the *Hymenoptera* to be given to the order, such as is bestowed on beetles and butterflies, I take the liberty to make public my method of arranging *Hymenoptera* for a collection, it being the result of thirty years' practice.

As the mode of killing is of great importance, as preparatory to preserving, I cannot help touching briefly upon it. Sulphuric ether, chloroform, benzine, and cyanide of potassium, are the means of producing death, which are generally made use of. But all the ways have the same inconvenience ;—that the limbs become very soon tender and stiff, whereby the chance of preserving them is made very difficult, if not impossible.

I speak strongly against cyanide of potassium for two reasons ; first, because with this highly dangerous poison a slight want of care may cause a misfortune ; and, secondly, because it works strongly on the colour of the insect ; for instance, it changes beautiful yellow into red, whereby the insect cannot be recognised, and often gives rise to a new pseudo-species, as we already have in the *Amblyteles regius*, which is nothing more nor less than *A. fasciatorius* (vide Stettin. Ent. Ztg., 1874, p. 142) with the colour changed in the above manner.

The method which I use was, according to my knowledge, first employed by a collector in this neighbourhood for killing beetles, and his good success occasioned me to make use of it for other insects. A small bottle (if possible, somewhat compressed) of white glass, and with rather wide neck, is half-filled with dried moss, or instead, especially for smaller insects, which are easily lost, small bits of paper may be taken. Before I begin my excursion, I choose my bottles according to the booty I expect to bring home ; I put some sulphuric vapour into each by means of a lighted sulphur match, and take care to close the bottle well.

For the larger bottles I use the sulphur matches, as they were called before the introduction of lucifers, and which are easily made. By right treatment the sulphur will burn away, but not the match, which will soon go out. The sulphuric vapour thus formed does not easily evaporate, and one can put insects, from one to three hours after they have been caught, into the bottle, where they are very soon dead.

In doing this there are two things necessary to observe : first, to put the insects into the bottle as quickly as possible, that the vapour may not escape ; second, not to expose the bottle to the sun, or the vapour in it turns to liquid, and hairy insects are spoiled. Humble-bees require especial care ; for instance, when one is sticking them, if the pin slips, a juice flows out of the wound which sticks the hairs together, and thus destroys the most perfect examples.

This can be avoided by sticking the bee with a very fine needle, and sideways, so that the honey-stomach is not pierced ; or by putting a small pair of pliers in at the opening of the net, and seizing the bee by the leg ; and also by being careful not to put too many bees into a bottle, for then, if they do not die quickly, they crawl over and besmear each other with the matter from their wounds, or bite each other's antennæ off, and exhale so much carbonic acid gas, that if a lighted match be introduced, it will immediately go out, and produce no sulphuric vapour.

It is best to prepare insects killed in this way on the following day ; still, if necessary, the setting can be put off till the second or third day, if the bottles remain well-corked in a cool place. I try to stick the insects equally in such a manner that about a fourth of the pin remains visible above, and the other part is perpendicular through the sternum, this being of great importance in setting. For setting I use a smooth-planed board of pine or lime-wood, of about 35 centimetres long, $3\frac{1}{2}$ thick and 4—8 broad, with a groove along the centre, about 3 to 20 mm. broad, and about the same depth.

In the bottom of this groove are some holes made perpendicularly, and filled with cotton wool, but not too much of it. The pins are put into these holes (best at the side between the wood and the cotton) as far as the roots of the wings of the insects ; next, the legs are arranged, the front ones towards the front, and the middle and hind ones in an opposite direction, if possible not straight, but bending from the knees.

Next, the wings are to be stretched out inclining a little to the front by means of pieces of paper over them fixed by a pin at each end.

The separation of the front from the hind-wings is self-acting, because the front ones spread over the front edge of the hinder ones, and a little hook on the edge of the under-wing, when the fore-wing is moved, pulls the hinder one after it. Lastly, the antennæ are brought into position by means of needles ; care should, however, be taken not to stretch out these organs in *Ichneumon* females when they are rolled up, as a characteristic peculiarity would be lost.

The insects need not remain on the setting-board longer than necessary for the wings to remain as placed, when the strips of paper may be removed. Small insects, especially *Ichneumon*-flies, are ready, as far as setting is concerned, on the following day, but larger ones, such as humble-bees, often require a week or more.

In setting the wings, the bodies of the insects are obliged to be brought into

such a small space, that the natural position and separation of the legs from the body is not easy, so after the setting is finished, the legs must still be turned outward by means of strong needles, but with great care, the needles being placed as near to the body as possible, because by this time the legs will bear moving only from the base, being there not thoroughly dried.

Small *Hymenoptera*, for which the finest pins are too thick, have to be stuck on fine silver wire, as *Micro-Lepidoptera* are, and mounted on pieces of the pith of the Jerusalem artichoke (*Helianthus tuberosus*), or on birch-agaric (*Polyporus betulinus*).

For the sake of uniformity, these pieces should be cut to some particular measure (about 1 cm. long, 2 to 3 mm. broad, and 3 mm. thick); these are stuck on pins, and prepared at the beginning of the collecting season, in order to have supplies ready.

These pieces of pith are placed on the pins so that the insects on them are at the same height at the other insects arranged on pins (about two-thirds up the pin); and the piece should be fastened on the under-side by means of a little gum, to prevent its turning round. Whoever wishes to arrive at a higher state of perfection, and to rival the *Micro-Lepidopterists*, may try to set these small insects (mostly gall-flies, *Braconidæ* and *Pteromalidæ*) before sticking them on to the pith. The smallest excepted, the larger ones would not offer much more of a difficulty than, perhaps, a *Nepticula*. The groove in the setting-boards for such insects, if filled up with the above-named pith, offers the best medium for this purpose. Patience and practice are here, as well as elsewhere, necessary; and whoever has not, or does not acquire, those essentials, or who contends that careful preservation, setting, &c., is pedantic, will be obliged to renounce the æsthetic, as well as the most practical, use of a *Hymenoptera* collection.

If Mr. F. Smith was so charmed with his method of preparing *Hymenoptera*, which left much imperfection, that he was ready to affirm that a collection of insects prepared according to his system, was "worth a pilgrimage to look at" (*The Entomologist's Annual*, 1856, p. 106), even more could be maintained with regard to a collection made up in the above way.

It is easily to be understood that such a preservation as that above mentioned can only be carried out when one is at home, or in some one place for any length of time.

On long journeys, where the chief thing is to collect, and to bring the collection into the smallest space possible, *Hymenoptera* can be immediately pinned, and then stuck in a box which has been saturated with benzine; or, after having first been killed in the above way, they may likewise be pinned or packed between layers of wadding, and the intermediate space strewn with camphor; they can afterwards be relaxed, and then preserved, &c. Still they do not bear it as well as beetles and butterflies do; however, they bear it better than *Diptera*, which are only fit for anything if immediately killed and pinned.—Dr. KRIECHBAUMER, Munich. (Extracted from the *Stettiner Ent. Zeitung*, xxxvi, 88, 1875).

ENTOMOLOGICAL SOCIETY OF LONDON: 3rd May, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Prof. H. Burmeister was elected Honorary Member to fill the vacancy caused by the death of Prof. Zetterstedt.

The President exhibited specimens of *Stylops* taken by himself from *Andrena atriceps* recently captured at Hampstead, and remarked on their habits and peculiarities. Mr. F. Enoch, who had visited the locality at an earlier hour (between 9 and 10 a.m.), had taken 17 males, one on the wing. He remarked on the differences presented by the females of *S. Spencii*, which infests *Andrena atriceps*, and *S. Thwaitesi*, parasitic on *A. convexuscula*; and said it was very desirable that the *Stylopidae* should be carefully examined with respect to the species of bees upon which they were found. One individual of *A. atriceps* produced a male *Stylops*, and in the same bee were four female pupæ.

Mr. Smith concurred in the President's remarks as to the desirability of a more extended study of our native *Stylopidae*, and thought that instead of the few species now recorded, we probably possessed nearer a dozen.

Mr. C. O. Waterhouse exhibited a species of *Chelifer* (or allied genus) found under the following circumstances. Being desirous of examining certain structures in a large species of *Passalus* from Rio Janeiro, he took out the abdomen of the beetle, and the *Chelifers* were found between it and the elytra. He also exhibited the drawing of the base of the abdomen of a species of *Ascalaphidae* from W. Australia, remarkable for having, in this position, a large bifid hump, each division furnished with a crest of hairs: the insect was considered to be the ♂ of *Suphalasca magna*, McLach.

Mr. McLachlan said that Mr. Waterhouse's determination of the species was probably correct; he believed that a second example existed in Hagen's collection, received by him from Schneider under the MS. name of *Azesia camelus*: the only analogous form was *Aemonotus incusifer*.

Mr. Wormald exhibited a box of *Neuroptera*, &c., collected in Japan by Mr. H. Pryer. There were several beautiful species of *Panorpa*, and a new genus allied thereto. Also a very remarkable Trichopterous insect of the genus *Perissoneura*, of large size, black, with a large white spot in each wing, deceptively like some species of butterflies.

Mr. Müller communicated a note respecting a recent exhibition, by Mr. Cole, of ash-leaves deformed by a *Cecidomyia*; he said it was *C. botularia*, Winnertz, of which he had published an account in the 'Gardener's Chronicle' for 1870, p. 1731.

Mr. McLachlan read an extract from the Rev. A. E. Eaton's first report as Naturalist to the Transit of Venus Expedition to Kerguelen's Island, published in the Proc. Royal Society. [This extract is reprinted *in extenso* in the present number, ante p. 1]. A discussion ensued as to the manner in which the fact of most of the insects being apterous (or nearly so), might be accounted for. Mr. McLachlan alluded to the idea that the constant prevalence of high winds rendered a large spread of wing useless; Mr. Jenner Weir stated that another hypothesis had been suggested, viz., that as all the endemic flowering plants were apetalous, and apparently self-fertilising, the presence of winged insects was not necessary.

Prof. Westwood communicated a paper on short-tongued bees of the genus *Nomia*, and another on species of *Rutelidae* from Eastern Asia and the islands of the Eastern Archipelago.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

(continued from Vol. xi, page 232.)

Genus THAMNOTETTIX, Zett.

As originally constituted by the author, this genus contained fourteen species, which were sub-divided into two sections, the first containing eleven, and the second three, species; but subsequent authors have agreed to differ, not only from him, but even from one another, as to their distribution.

Kirschbaum, in his "Athysanus-Arten" (1858), was the first to commence the work of demolition, by placing two of the species (*griseus* and *plebeja*), being all that were at that time known to him, in the genus *Athysanus*, Burm. Three years later, Flor, in the "Rhyn. Livl.," assigns the same two species to his sub-genus *Athysanus*, and such others, belonging to Zetterstedt's genus, as he knew, viz.: *prasina*, *biguttata*, *cruentata*, *Torneella*, *subfuscula*, and *striatula*, he carried to his sub-genus *Jassus*. In 1868, Kirschbaum, in his "Cicad. Wiesb. u. Frankf." sinks his former genus, *Athysanus*, to a sub-genus, still retaining the same two species in it. Others, with which he had become acquainted in the interval between the publication of his works, he retains in his sub-genus *Thamnotettix*. Then came J. Sahlberg's work in 1871, published in the "Not. Fenn." He appears to have known all Zetterstedt's species except one (*lineolata*). With the exception of three, he follows Zetterstedt, restoring *plebejus* to its original position, but placing *griseus* and *sordidus* in the genus *Athysanus*. The only remaining species, *striatula*, he disposes of in a new genus of his own (*Limotettix*). Had Fieber lived to complete his projected work, judging from the "Kat. der europäischen Cicadinen" (1872), we should have had a totally different state of matters. For Zetterstedt's type of his genus, Fieber characterizes a new one, *Allygus*, and certainly the insects which he includes in it have a distinct character in size and uniformity of markings; this may, however, eventually prove to be only sectional. He then adopts *cruentata* and *Torneella* as the only representatives of Zetterstedt's genus, and consigns the remainder to the genus *Athysanus*, Burm. With these differences of opinion it is difficult to know how to deal. Generally, in the following paper, I have adopted Fieber's views, so as to prevent greater confusion; and I believe the diagnoses given will be found ample enough to lead to the identity of all the species.

THAMNOTETTIX (Zett.), Scott, Fieb., p., J. Sahlberg, p.

For the most part elongate, slightly dilated across the middle of the elytra.

Head—crown : measured through the centre equal to or more than half the length of the basal margin ; sides in front gently rounded to the centre, which is itself rounded. *Ocelli* placed close to the front margin and near the eyes. *Face* moderately convex. *Antennæ* short, second joint cylindrical.

Thorax—pronotum twice as broad as long ; anterior margin convex ; posterior margin straight across the scutellum, from thence to the short lateral margins acutely rounded. *Scutellum* triangular ; apex acuminate. *Elytra* as long as or longer than the abdomen ; apical areas, four. *Wings* : first and third longitudinal nerves entire, second furcate at or just beyond the middle ; first concave next the apex, and joined to the anterior branch of the second nerve by a short transverse nerve ; third joined to the inner branch of the second nerve at a short distance from the furcation by a short transverse nerve.

Abdomen : genital valve short, triangular ; genital plates elongate triangular, apex narrowly rounded, reaching to the end of the last segment.

A. TESTACEOUS SPECIES.

Elytra lanceolate, without red spots or atoms, pale testaceous ; nerves almost white.

Crown sometimes orange-reddish, with a short black streak on each side of the middle of the anterior margin, and a whitish longitudinal streak down each side of the centre. *Pronotum* and *scutellum* sometimes orange-reddish, the former with five, the latter with three, longitudinal whitish streaks. *Elytra* : central apical area and the adjoining ante-apical area generally black or pitchy-brown 1. CROCEA, H.-Sch., = (*attenuatus*, Marshall).

Elytra not lanceolate, pale testaceous ; nerves almost white.

Crown with a whitish line down each side of the centre. *Pronotum* with five, *scutellum* with three, whitish longitudinal streaks. *Elytra—clavus* with a black spot at the apex of the central nerve. *Corium* : apex of the discoidal area and base of the adjoining ante-apical area each with a pitchy-brown or blackish spot ; all the longitudinal nerves, more or less in different individuals, very finely and irregularly margined with pitchy-brown ; central apical area black or pitchy-brown.....2. ATTENUATA, Germ., = (*rupicapra*, Marshall).

Very closely allied to the foregoing species, from which it may at once be separated by the difference in the shape of the elytra and the black spot in the clavus.

Entirely pale testaceous, and thickly covered with minute red spots or atoms.

Face with a black spot on each side of the middle of the upper margin, barely visible from the crown. *Elytra*: apex with a short, longitudinal fuscous or blackish dash, more distinct in some individuals than in others..... 3. *CRUENTATA*, Panz.

Elytra: nerves on both sides broadly margined with fuscous.

Crown yellow, with two somewhat semicircular black spots next the basal margin, and adjoining each eye, but not touching either; these are joined to two others more interior, down the centre of which is a short fine yellow streak; anterior margin on each side with three rounded black spots, which are united, leaving between them in the centre a distinct yellow **⊥**-shaped character. *Face* on each side with several transverse black streaks enclosed in an oval black border. *Pronotum* with four longitudinal black lines, the two interior ones placed close together, and leaving a very fine yellow central line and two small spots next the anterior margin, the two exterior irregularly interrupted by transverse yellow lines. *Scutellum* yellow, base black, or black with the basal angles yellow. *Elytra* with a fuscous shade produced by the broad fuscous margin to the nerves. *Corium*: anterior margin with a broad fuscous line throughout its entire length; apical areas fuscous, or the area next the anterior margin with a pale patch in the middle.

♀ testaceous, with the characters on the crown faintly indicated, and those on the elytra almost obsolete 4. *MELANOPSIS*, Hardy, = (*Scotti*, Fieb., Cat.).

Originally described by Hardy in the Tr. Tyne. Nat. F. C., vol. i, p. 127, 3 (1850), as *Aphrodes melanopsis*.

Crown deep black with a few testaceous spots of irregular size. *Face* deep black on each side, with a few transverse testaceous streaks, round which is an oval black border. *Pronotum* deep black, finely wrinkled transversely, and with numerous short irregular, somewhat obscure transverse testaceous streaks. *Scutellum* deep black with a spot on each side of the centre at the base, side margins and apex obscurely testaceous.

Elytra hyaline; nerves broadly black margined on both sides, thereby forming ocellated spots in the middle of the areas; apical area next the anterior margin generally black 5. *CORNICULUS*, Marshall.

Minute and closely related to the foregoing species, but its blackness and the ocellated spots in the areas of the elytra are sufficient to distinguish them.

Elytra inclining to yellow, variegated with fuscous; apices of the nerves of the *clavus*, and transverse nerves of the *corium*, white.

Crown viewed from above triangular, from in front somewhat rhomboidal, with two black spots in front on each side of the centre, continued on to the frons, and two square spots of the same colour in a line with the anterior margin of the eyes, the intermediate space between the spots forming a distinct pale cross. *Pronotum* with a few black spots next the anterior margin, and frequently two or more longitudinal fuscous lines. *Scutellum* with a triangular black spot at each basal angle, and generally between these two small ones of the same colour. *Elytra* somewhat yellowish. *Clavus*: commissura, a streak between the nerves,

and another at the apex along the inner margin, fuscous. *Corium*: the two apical areas adjoining the anterior margin, and two patches above the same, fuscous; portions of the discal areas fuscous, but the pattern varies much in different individuals; transverse nerves white 6. *SPLENDIDULUS*, Fall.

Deep testaceous or yellowish; nerves of the elytra pale.

Crown viewed from above triangular, with two black spots in front, one on each side of the centre, continued on to the frons; in a line with the anterior margin of the eyes, two black \neg -shaped characters, the space between these and the spots pale yellowish. *Pronotum*: posterior half paler than the anterior. *Scutellum* with a brownish shade. *Elytra* deep testaceous, shining, with a broad brown wash throughout their entire length, leaving the anterior margin of the corium, and a space below the apex of the clavus, pale; down the centre the colour is narrowly darkest; all the nerves pale, and most observable when the insect is in repose. *Sternum* black 7. *PUNCTIFRONS*, Fall.

The diagnoses of the two following species are extracted from those of the Rev. T. A. Marshall in the Ent. Mo. Mag., vol. ii, pp. 265-6 (1866), because the insects in his collection representing the first species are, I regret to say, in such bad condition, owing to their unfortunate submersion some years ago, as to render it an almost hopeless task to make descriptions from them, and in the second species, which he refers to with a ?, there being but a single specimen in the collection of the late T. J. Bold, which I have been unable to examine.

Testaceous. *Elytra* at the apex with some of the cells margined with fuscous.

Crown with two black spots on each side of the centre of the anterior margin, and sometimes faint traces of irregular fulvous spots upon the vertex. *Face—frons* above and on the sides bordered by a bisinuate black line, widest at the vertex; sides with transverse black lines, and some more or less obsolete black patches in which are enclosed pale spots. *Elytra* almost unicolorous, with some of the cells within and round the apex margined with fuscous. *Wings* hyaline. *Legs* distinctly spotted with black; *tibiæ*: third pair at the apex somewhat fuscous; *tarsi*: apex of the joints sometimes fuscous..... 8. *CORONIFER*, Marshall.

Fieber, in his catalogue, by mistake, attributes this species to Curtis.

B. YELLOW OR GREENISH-YELLOW SPECIES.

Yellow or fuscous-green.

Frons brown bordered with yellow on each side; above the apex are two curved streaks, the upper one joined to the ocelli. *Elytra* pellucid, longer than the abdomen, apex rounded; nerves pale yellow; apical cells in the middle obscurely spotted with fuscous. *Wings* at the apex faintly smoke coloured. *Legs* pale. *Thighs* with black lines and spots; *tarsi*: third pair black at the base; *claws* black..... 9. *VITRIPENNIS*, Flor. ?

Elytra sometimes with the nerves bright yellow.

Crown with a black spot, sometimes almost obsolete, near the anterior margin of each eye. *Face*: upper margin with a short transverse black streak on each side of

the centre, and a black spot in a line with the same, close to each eye; down each side of the centre is a short broad black streak, sometimes almost obsolete, interrupted at intervals by short pale transverse streaks.

10. *INTERMEDIA*, Boh., = (*lunulifrons*, J. Sahlberg).

C. CRETACEOUS OR SOMEWHAT SEMI-TRANSPARENT SPECIES.

Crown with three somewhat large black spots at the anterior margin, and another in the middle of the basal margin. *Face* with a central black spot almost touching that on the crown; below the base of the antennæ a black spot. *Elytra*—*clavus*: inner margin and suture, and the adjoining nerve of the corium, black or fuscous-black, the colour of the last fading before reaching the apex.

11. *PREYSSLERI*, Fieb.

D. GREEN SPECIES.

Crown unspotted, generally with a red central line. *Face* with two black spots adjoining the upper margin; side margins very narrowly, and a small spot immediately below the base of the antennæ black. *Legs* sometimes orange-reddish.....12. *FRONTALIS*, H.-Sch.

Crown sometimes with a faint lunate brown streak in front on each side the centre, and two spots of the same colour more internally. *Face* pale brownish with pale transverse streaks; at the base of the antennæ a black spot.

13. *VIRESCENS*, Fall.

Crown bright yellow with four black spots placed as follows—two near the anterior margin of the eyes, and two closer together in front, continued on to the frons. *Face* with a black spot below the base of the antennæ; side margins sometimes very narrowly, and inner margin of the *loræ* broadly black. *Antennæ* pale; second joint except the apex black. *Elytra* sometimes with one or two pale fuscous longitudinal streaks14. *4-NOTATUS*, Fieb.

Genus *GRAPHOCRÆRUS*, Thomson, Opusc. ent., i, 57, 25.

Very few will question the correctness of the author's views with respect to the insect about to be described. It has figured in three or four different genera, because no one seems to have known what to do with it, and I hope it has now found a safe retreat. In some respects the insect is much more nearly allied to *Doratura*, J. Sahlb., than to any other European genus with which I am acquainted. The peculiar character of the genitalia of the male, viewed from behind, separates it from all the genera with which it has been formerly placed. The appendage hanging over the tube, and which may be seen by an ordinary pocket lens, resembles a neckerchief with the ends crossed and ready for tying.

GRAPHOCRÆRUS VENTRALIS, Fall.

Oblong, pale green or greenish-yellow, somewhat opaque. *Elytra* of the ♂ as long as the abdomen, ♀ shorter.

Head—crown flat; side margins nearly straight, somewhat obtusely rounded at the centre, within which is a distinct deep transverse channel; across the disc, and a little in front of the anterior margin of the eyes, are four black spots, the two exterior ones just visible in front. *Face*—*frons* with a black spot on each side of the centre of the upper margin, and another on the cheeks, about in a line with the lower margin of the eyes. *Antennæ* short, pale.

Thorax—*pronotum* transverse; posterior margin very slightly concave across the scutellum; disc very finely wrinkled transversely; in front with two slight calli, between which are two punctures (in the ♂ generally black). *Scutellum* and *elytra* pale green or greenish-yellow, without markings. *Legs* pale green; *tibiae*: all the pairs with one row of black spots down the inner margin, least distinct in the first pair and two rows down the exterior margin; apex narrowly black; spines pale brownish-yellow.

Abdomen: genital plates green, somewhat triangular with the outer side convex, reaching beyond the last segment; viewed from behind posterior margin black.

Length, 3 lines.

Taken by Mr. Douglas and myself at Weybridge and Lee in July, and at Abbey Wood in August.

37, Manor Park, Lee, S.E.:

April, 1875.

NOTES ON BRITISH HOMOPTERA, WITH DESCRIPTIONS OF ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

(continued from Vol. xi, p. 199).

TYPHLOCYBIDÆ.

The list of British species at present stands as follows: those marked * are now first introduced, and, with *Typh. tenerrima*, H.-Schf., which is as good as new to us, are described below; the others (except *Eupt. notatus*, Curt., and *E. abrotani*, Doug., which have been otherwise noticed) were described in the E. M. M., vol. iii, by the Rev. T. A. Marshall, and are now referred to by the numbers there given.

1. ALEBRA, Fieb. (*olim Compsus*).

1. *albostriella*, Fall.—Marsh., l. c., No. 1.

2. CYBUS (*Kybos*, Fieb.).

1. *smaragdulus*, Fall.—Marsh., l. c., No. 5.

3. CHLORITA, Fieb. (*olim Chloria*).

1. *viridula*, Fall.—Marsh., l. c., No. 4.

2. *flavescens*, Fab.—Marsh., l. c., No. 6.

3. *apicalis*, Flor.—Marsh., l. c., No. 7.

4. DICRANONEURA (*Dikraneura*, Hardy, 1850; *Notus*, Fieb., 1865).

1. *flavipennis*, Zett.—Marsh., *l. c.*, No. 3.
- *2. *citrinella*, Zett.
- *3. *mollicula*, Boh.
4. *variata*, Hardy,—*N. aridellus*, J. Sahlb., *E. citrinellus*, Marsh., *l. c.*, No. 2.

5. TYPHLOCYBA, Germ., Fieb., 1865 (*Anomia* and *Zygina*, Fieb., 1872).

1. *jucunda*, H.-Schf.—Marsh., *l. c.*, No. 19.
2. *10-punctata*, Fall.—Marsh., *l. c.*, No. 17.
3. *quercus*, Fab.—Marsh., *l. c.*, No. 20.
4. *ulmi*, Lin.—Marsh., *l. c.*, No. 18.
5. *tenerrima*, H.-Schf.—*T. rubi*, Hardy.
- *6. *aurovittata*, Fieb.
7. *nitidula*, Fab.—Marsh., *l. c.*, No. 13.
8. *geometrica*, Schrk.—Marsh., *l. c.*, No. 14.
- *9. *gratiosa*, Boh.
- *10. *lactea*, Leth.
11. *rosæ*, Lin.—Marsh., *l. c.*, No. 12.
- *12. *alneti*, Dahlb.
13. *scutellaris*, H.-Schf.—Marsh., *l. c.*, No. 11.
- *14. *rosea*, Flor.
15. *blandula*, Rossi.—Marsh., *l. c.*, No. 10.
16. *hyperici*, H.-Schf.—Marsh., *l. c.*, No. 9.
17. *parvula*, Boh.—Marsh., *l. c.*, No. 8.

6. EUPTERYX, Curt., J. Sahlb.

1. *vittatus*, Lin.—Marsh., *l. c.*, No. 25.
2. *notatus*, Curt., B. E., xiii, 640.
3. *abrotani*, Doug., E. M. M., xi, 118.
4. *filicum*, Newm.—Marsh., *l. c.*, No. 16.
5. *urticæ*, Lin.—Marsh., *l. c.*, No. 26.
6. *auratus*, Lin.—Marsh., *l. c.*, No. 23.
7. *pictus*, Fab.—Marsh., *l. c.*, No. 24.
8. *stachydearum*, Hardy.—Marsh., *l. c.*, No. 28.
9. *melissæ*, Curt.—Marsh., *l. c.*, No. 27.
10. *signatipennis*, Boh.—Marsh., *l. c.*, No. 15.
11. *pulchellus*, Fall.—Marsh., *l. c.*, No. 21.
12. *Germari*, Zett.—Marsh., *l. c.*, No. 22.

There are still many European species of this family which may be expected to occur in Britain. I am greatly indebted to Dr. John Sahlberg for his assistance in confirming and determining many of the species. The following brief descriptions will suffice to distinguish the respective species; I have now no opportunity to go more into detail.

2. DICRANONEURA CITRINELLA.

Cicada citrinella, Zett., F. Ins. Lap., 536, 36 (1828). *Cicadula*

citrinella, Zett., Ins. Lap., 299, 13 (1840). *Typhlocyba forcipata*, Flor., Rhyn. Liv., ii, 389, 5 (1861); Kirschb., Cicad., 181, 9 (1868). *Notus citrinellus*, J. Sahlb., Not. Fenn., xii, 165, 3 (1871).

Citron-yellow. *Crown* obtusely produced in front, posteriorly deeply emarginate. *Antennæ* as long as the head and pronotum together. *Pronotum* a little longer than the head, scarcely emarginate at the base. *Elytra* citron-yellow, subhyaline, the nerves and claval suture showing distinctly, the 1st and 4th apical cells longest, of nearly equal length, the 2nd and 3rd sub-parallel, the 2nd much shorter than the 3rd. *Wings* hyaline with yellowish nerves. *Legs* yellow; *claws* of the tarsi fuscous. *Abdomen* above black or blackish, the margin of the segments narrowly yellowish. Length, $1\frac{1}{2}$ line.

Taken, September 23rd, in a gravel-pit at Blackheath, where *Teucrium scorodonia*, *Ballota nigra*, and *Lamium album* were growing together.

3. DICRANONEURA MOLLICULA.

Typhlocyba mollicula, Boh., Vet. Ak. Handl., 43, 18 (1845); *Typhl. Flori*, Kirschb., Cicad., 179, 6 (1868); *Notus molliculus*, J. Sahlb., Not. Fenn., xii, 166, 4 (1871).

Citron-yellow. *Crown* obtusely produced in front; *face* very long. *Pronotum* at least twice as long as the head, posterior margin slightly emarginate. *Elytra* citron-yellow, sub-diaphanous, towards the membrane colourless and transparent, leaving the yellow nerves conspicuous, apical area transparent, nerves yellow; costal cell a trifle longer than the 4th, 2nd and 3rd shorter, both of equal length, sub-parallel. *Wings* transparent, nerves whitish. *Legs* pale yellow, *claws* of tarsi fuscous. *Abdomen* above black, the margin of the segments narrowly pale. Length, $1\frac{1}{2}$ line.

Very like *D. citrinella*; differs especially in the proportion of the apical cells of the elytra, as stated.

Taken July 10th, 1867, on *Helianthemum vulgare* growing outside Darenth Wood, where also were some plants of *Echium vulgare*.

5. TYPHLOCYBA TENERRIMA.

Typhlocyba tenerrima, H.-Schf., Panz. F. G., 124, 10, and 164, 16 (1834); Kirschb., Cicad., 185, 19 (1868); J. Sahlb. Not. Fenn., xii, 178, 6 (1871). *Typhl. rubi*, Hardy, Tr. Tynes. F. C., i, 417, 3 (1850). *Typhl. misella*, Boh. Vet. Ak. Handl., 122 (1853).

Very slender, whitish and pale yellow. *Crown* obtusely produced. *Pronotum* about one-fourth longer than the head, anteriorly rounded, posterior margin subtruncate. *Elytra* pale yolk-yellow, costa and longitudinal nerves white, broadly at the base; apical area white, diaphanous, with white nerves, the latter, especially at the base, margined with fuscous, the two that run out on the costa and the one on the lower margin each terminating in a distinct black dot. Sometimes the elytra are very pale yellowish, but the costa and nerves are always paler. *Wings* white, transparent, iridescent. *Legs* pale; *claws* of the tarsi fuscous.

Abdomen above black, the segments narrowly margined with white.

Length, nearly $1\frac{1}{2}$ line.

Herrich-Schäffer's figure of the imago is not characteristic, that of the separate elytron is better and agrees with the description, and I have no doubt that our insect is his species. Hardy's description of *T. rubi* is very good and well designates our insect.

A distinct, delicate species; somewhat like *T. ulmi*, Lin., but smaller, whiter, and with the yellow in the elytra of a lighter and brighter hue. Although not absolutely new to us, I have thought it would be well to describe it afresh.

Not rare on bramble in August and September.

(*To be continued*).

BRITISH HEMIPTERA.—ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS.

Under the name of *Salda pallipes*, Fabricius described a species of which the diagnosis runs thus: "atra, elytris pallidis, basi maculae marginali atris." Now, there are two species of *Salda* which have been referred to this; the vagueness of the word "pallidis" having no doubt led thereto. The species differ in the shade of the colour of the pale portion of the elytra, which in one is dingy pale yellowish or darker (*pilosella*), and in the other white, more or less clear (*pallipes*); but there is also the more important distinction that in the former species the corium of the elytra is clothed with long black hairs, and in the latter with very small short ones, visible only under a lens of strong power. The difference of colour has been recorded by authors, but has not generally been held to mark a specific distinction; the difference as to the black pilosity does not appear to have been noticed. It is true that Mr. Scott and I, in the description of our *S. pallipes*, mentioned the long black hairs; yet, as we did not at that time know the form with the short hairs, we could make no comparison.

Herr Thomson, in his "Opuscula Entomologica" has, I must think rightly, separated the species, taking the white, short-haired one as the *pallipes* of Fab., and giving the name *pilosella* to the darker, long-haired one. The omission by authors to notice the dark clothing of the species they described makes it difficult to determine the synonymy with certainty; but, with reference to the other characters given, the following may be taken as approximate to the truth. There are some other synonyms that I hesitate to appropriate.

In the Oefv., 390, 7 (1868), and in Hem. Fab., i, 91, 3, Professor Stål refers *Salda pallipes*, Fab. (which, according to him, includes *S. pilosella*, Thoms.), to *S. saltatoria*, Lin., as a variety; I cannot but think this is an error, resulting, possibly, from a misconception of the type of *saltatoria*. Fallén says of *S. pallipes*, *l. c.*, "Pro varietate "majori *S. saltatoriæ* haud rite haberi potest."

SALDA PALLIPES.

Acanthia pallipes, Fab., E. S., iv, 71, 17 (1794); *Salda pallipes*, Fab., S. R., 115, 12 (1803); Fall., Hem. Suec., i, 73, 4 (1829); *p. Zett.*, Ins. Lap., 267, 4 (1840); H.-Schff., Wanz., vi, 43, t. 194, fig. 600 (1842); Costa, Atti, vii, 245, 5, t. i, fig. 7 (1847)?; *p. Fieb.*, Eur. Hem., 146, 12 (1861); Thoms., Opusc. Ent., iv, 407, 15 (1871). *Salda bicolor*, Costa, Atti, vii, 245, 5, t. i, fig. 6 (1847).

I give the following from Herr Thomson's description. "Black; "above densely clothed with golden-fulvous pubescence; *elytra* with "pale spots and streaks, or dingy white with the base and some spots "on the disc, black," &c.

"Distinguished from *S. saltatoria* by the larger size, and more "oblong-oval form; the membrane longer and less broadly rounded; the "pronotum less transverse, the arcuate impression and the foveola of "disc deeper," &c.

Two or three examples were taken a year or two since at Hayling Island, by Mr. Moncreaff, and kindly forwarded.

SALDA PILOSELLA.

Salda pilosella, Thoms., Opusc. Ent., iv, 407, 16 (1871). *Acanthia dimidiata*, Curt., B. E., xii, 548, 13 (1835)? *Salda pallipes*, *p. Fieb.*, Eur. Hem., 146, 12 (1861); D. and S., Brit. Hem., i, 527, 8 (1865). *Salda saltatoria*, var. b, Stål, Oefv., 390, 7 (1868), *sec. Thoms.*, *l. c.*

Thomson says of this: "Black, densely fuscous-pubescent, above "more sparingly and longer pilose; *elytra* with streaks and spots, and "with the feet obscure testaceous," &c.

"In form, size and marking very like *S. pallipes*, but the 2nd "joint of the antennæ has a few longer hairs, the *elytra* are more "fuscous-pubescent internally, and the head and pronotum black-"pilose."

Curtis's *Acanthia dimidiata* is most probably this species, and the name would have to be adopted if the description were sufficient; but, no mention being made of the pilosity, absolute certainty is wanting.

Common at many places on the coast.

15, Belgrave Terrace, Lee, S.E.:

April 30, 1875.

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS
OF NEW SPECIES.

BY G. H. VERRALL.

In August, 1872, I published in the pages of this Magazine a list of British *Dolichopodidæ*. I now propose giving a few notes on some of the rarer species included therein, especially when additions to our Fauna, adding also a few species which I have noticed or determined since.

DOLICHOPIUS PHLEOPUS, Wlk.—I caught this rare species in some numbers near Poole on July 19th, 1871. Walker's (or rather Haliday's) description calls the legs "piceous; the fore pair lighter, with "the tibiæ rather pale." They are, however, usually much darker than that; but Loew was unfortunately so much misled by the description, that he redescribed the species in 1871 from the Harz and Sudetes mountains as *D. montanus*. He has since seen a pair of my catching, which he at once identified as his new species.

D. PICIPES, Mg.—According to Loew, Haliday himself declared his *D. fastuosus* to be a synonym of Meigen's *D. picipes*, after seeing types of the latter at Paris. The specimen in Stephens' collection described in the *Insecta Britannica* as *D. picipes* is without doubt *D. lepidus*, Stæg.

D. LEPIDUS, Stæg.—Though the specimen just mentioned would make this species British, it is surprising it has not been otherwise noticed. I have captured it abundantly at Rannoch and Lyndhurst, and have also taken it at Braemar and Weybridge.

D. MELANOPUS, Mg.—I caught two males of this in the New Forest on June 26th, 1872.

D. PLANITARSIS, Fall.—Though Walker leaves out the (S) for this species, the only specimen I have seen was caught near Aberdeen.

D. LATILIMBATUS, Meq.—I captured several of this species on August 26th, 1874, either near Three Bridges Station or about one of the ponds in Tilgate Forest; I also caught two females near Poole three days afterwards, which I think are the same. The species is allied to *D. nubilus*, Mg., but is easily distinguished by the black fringed alulæ, more broadly and conspicuously margined lamellæ of the hypopygium, and lighter wings. The front tibiæ bear a long thin bristle near the tip. It is not uncommon on the continent.

D. CLAVIGER, Stan.—I met with this species each time I went to Aberlady, in a wood, but unfortunately mistook it for *D. discifer*, Stan., which I caught commonly at Rannoch and Braemar.

D. WAHLBERGI, Zett.—This species is well distinguished from *D. plumipes*, Scop., by its immaculate hind tibiæ and pale base of hind tarsi, by the absence of the dark line down the middle tibiæ, and the darkened tip with a white spot at the side, and by the longer and more feathered basal joint of the middle tarsi, which is as long as the other four joints together, the whole tarsus being comparatively longer than in *D. plumipes*. I have caught it at Abbott's Wood and The Plashett in Sussex, near Three Bridges, and in Essex. It seldom associates with *D. plumipes*.

D. SIGNATUS, Mg.—Walker seems to have correctly identified Meigen's *pennatus*, but does not seem to have noticed his *signatus* (= *argentifer*, Lw.). The latter has the middle tarsi without any feathering, but with the two last joints silvery in front, the antennæ black with only the base beneath yellow, and the hind tibiæ dark at the tip, bearing near the base a peculiar brown spot. I have caught *signatus* at Lyndhurst, Weybridge, and Aberdeen, and I think I have the female from Braemar and Rannoch.

D. MEDIICORNIS, *sp. n.*

♂ ♀. *Viridis, facie flavido-albâ, antennis sub-elongatis, articulo primo subtus luteo, fronte viridi, oculorum ciliis inferioribus flavis; abdominis incisuris nigris; pedibus flavis, coxis posterioribus cinereis, tarsis nigris, anterioribus basi flavidis, tibiæ intermediarum apice infuscato, posticarum nigro; alis sub-fuscanis, venâ discoidali leviter flexuosâ, ante apicem alæ excurrente.*

♂, *pedibus omnino simplicibus, hypopygii mediocris lamellis ovatis, minoribus, sordide albidis, apice et superne nigro-marginatis; costâ ubi vena sub-costalis excipit simplici.*

♀, *facie albidâ, antennis brevioribus, pedibus magis luteis et abdomine magis cupreo quam in mare.*

Slightly smaller than *D. trivialis*, Hal. Face whitish, with a yellowish tinge; antennæ rather long, the third joint being elongate, sub-acute, above as long as the other two joints together, below considerably longer. The hypopygium shining black, with more or less grey tomentum, the ends of the outer lamellæ considerably split up, the upper edge more regularly ciliated, and more obscurely margined with black. Legs yellow, front coxæ all yellow, bearing several black bristles at their end and numerous small black hairs on their disc in front, posterior coxæ grey, trochanters yellow, legs quite simple, there being no long bristle on the front tibiæ and

no ciliation beneath the hind femora, the tip of the middle tibiæ is generally infuscated, and then the middle tarsi are scarcely pale at the base, the apical eighth of the hind tibiæ is blackish ; the basal joint of the hind tarsi bears two large bristles above. Cilia of alulæ all black. Wings distinctly brownish on the anterior portion, especially about the veins, but with no trace of a stigmatal swelling, the discoidal vein ending distinctly before the tip of the wing. The female has the face broader and rather paler, the body (especially the abdomen) more coppery, the antennæ shorter, the third joint being nearly round, and the legs more luteous.

There is a small group of closely allied *Dolichopi* possessing the following characters in common : femora and cilia of the lower orbit pale, antennæ black, with the base pale beneath, legs simple without even the hind femora ciliated beneath, or the middle tarsi silvery at the tips in the males, the antennæ not inordinately long, the discoidal vein simple and the wings unspotted, without any stigmatal swelling in the male. The species hitherto described in this group are *puncticornis* and *lineaticornis*, Zett. (1843), *grandicornis* and *caligatus*, Wahlberg (1850), and *consobrinus*, Zett. (1859). The only species of these five recorded out of Scandinavia are *lineaticornis*, which is given as British in Walker's "Insecta Britannica," and noted as common in Germany by Loew in 1857, and *puncticornis*, noted by Loew from the Alps. The most distinct of these five seems to be *puncticornis*, with its "epistoma ochraceum" and "antennæ articulo basali subtus ad "apicem puncto parvo luteo ægre observando,"—characters which immediately separate it from *medicornis* : *lineaticornis* seems to be distinguished from the latter by "epistomate flavido—nervo long. 4to "leviter flexo fere in apice alæ excurrente—similis priori (*trivialis*, "Hal.) sed epistomate flavesciente, antennis paullo brevioribus, articulo "ultimo ovali, parum acuto (nec elongato, acuto)—et magnitudine "nonnihil majori abunde distinctus." If *medicornis* be compared with *trivialis*, it is slightly smaller, the epistoma is of almost the same hue, or even whiter, and the antennæ are distinctly longer, especially the third joint. The *lineaticornis* of the Insecta Britannica is also described as "face ochre-yellow in male, dull whitish in female," and is therefore in all probability distinct from *medicornis*. *Grandicornis* has "epistomate aureo-ochraceo—antennis articulis basalibus subtus "fulvis, coxis posterioribus basi ad $\frac{2}{3}$ cinereis, tibiis posticis ad sextam "partem indeterminate dilute infuscatis," and therefore seems distinct. *Caligatus* has "antennis capite transverso brevioribus, articulis basali- "bus subtus angustissime fulvis, coxis posterioribus basi ad $\frac{2}{3}$ cinereis, "nervo quarto in ipsum fere apicem alæ excurrente. Mas ; stigmatum "alarum atro, punctiformi." The fifth species, *consobrinus*, for which

I would propose the name *maculicornis*, as there was an existing *Dolichopus* (now *Tachytrechus*) *consobrinus* of Walker, is certainly distinct by its wings "linea stigmatali breviuscula atra," and "antennis articulo primo subtus ad apicem luteo." I am, therefore, rather reluctantly compelled to give a name to the species which I caught in some numbers in the New Forest on June 26th, 1871, as it does not satisfactorily agree with any previous description that I am acquainted with. Subsequent examination of the Swedish types may prove that some of them are incorrectly or carelessly described.

D. SABINUS, Hal.—I caught this pretty little species abundantly on the coast at Aberlady on July 27th, 1873, and have taken it during the present month at the Salterns, Fawley, Hants. A curious misprint occurs in the Scottish Naturalist on the first of these captures, the species being called *salinus*, a name which exactly suits its habits.

D. VIRGULTORUM, Wlk.—I caught a few of this rare species in Plashett Park, near Lewes, on August 4th, 1872.

D. AGILIS, Mg.—This species appears in the list simply from a female caught at Leith Hill on June 25th, 1868, which was named by Loew as *agilis*? I fear it is incorrectly named.

GYMNOPTERNUS PRINCIPALIS, Lw.—This handsome species, first described by Loew in 1861, has occurred at Meseritz, in Holland, and in Hungary. I caught three specimens near Poole on July 19th and 20th, 1871. It is about the size of *G. nobilitatus*, L., with the antennæ reddish-yellow, the tip being black, the arista somewhat plumose, the cilia of the lower orbit pale, the legs yellow, the wings greyish, brownish near the costa, and the face white.

G. GRACILIS, Stan.—After all, this species is not a synonym of *nigricornis*, Mg., and the name *gracilis* must therefore be reinstated. It is well distinguished from its allies by the *pale* fringed alulae and pubescent scutellum. I caught one male at Penzance, on July 8th, 1871.

G. CHEROPHYLLI, Mg.—At Aberlady, and at Mount St. Michael, near Penzance, I found a *Gymnopternus* in abundance on *Umbelliferae*, which I conclude to be this species; at any rate a specimen of the same caught near Lewes has been so named by Loew. It is closely allied to *G. germanus*, W., but differs in size and in the shape of the hypopygium.

G. PLAGIATUS, Lw.—A male caught at Abbey Wood on July 24th,

1870, seems to belong to this species. It has the cilia of the lower orbit pale, two basal joints and base of third joint of antennæ reddish-yellow, legs yellow, face silvery, cilia of the alulae black, wings greyish, cubital and discoidal veins only slightly converging, the discoidal ending almost in the tip of the wing, and the lamellæ of the hypopygium blackish, pale at the base.

G. ATROVIRENS, Lw.—On one of the Entomological Club days, I caught a male of this species at Footscray. It is blackish-green, cilia of the lower orbit black, face white, antennæ all black, scutellum bare, legs all black, bristly, front tibiæ with a long bristle near the tip, hind femora ciliated beneath with pale hairs, lamellæ of the hypopygium black, considerably jagged, wings very dark, cubital and discoidal veins strongly converging. Size, nearly $2\frac{1}{2}$ lines.

G. ANGUSTIFRONS, Stæg.—The female specimen of this, which I had caught myself, is now in Germany, and I have no memorandum of its locality, but I think it was Rannoch; the species has the cilia of the lower orbit black, the scutellum pubescent, the femora black and is much smaller than *G. cupreus*, Fall., which is the only other species with these characters.

G. METALLICUS, Stan.—I caught this once abundantly in Epping Forest on June 16th, 1872, and soon after met with it in Plashett Park, near Lewes, on August 4th. It is one of the species with black cilia of the lower orbit, and pubescent scutellum, with pale legs, and no black stigmatal swelling on the wings of the male; it is much larger than *G. ærosus*, and has a white face and yellowish lamellæ of the hypopygium.

G. ÆROSUS, Fall., var. *Dahlbomi*, Zett.—This variety of *ærosus* is common in Scotland, it has the legs considerably darker than the normal form, but does not seem to differ otherwise.

G. ASSIMILIS, Stæg.—This species is closely allied to *G. ærosus*, but the male has a white face, and the cubital and discoidal veins converge more. I have met with it sparingly at Rannoch, Lyndhurst, Three Bridges, and Darenth.

G. NANUS, Mcq.—I caught a few of this at Reigate on July 5th, 1872.

Lewes: May, 1875.

CAPTURES OF *STYLOPS*.

BY FREDK. ENOCK.

COMMUNICATED WITH NOTES BY FREDK. SMITH.

I send for publication a very interesting register of the captures of stylopized *Andrenidæ*, kept by Mr. Frederick Enock, who this spring has been wonderfully successful in obtaining so large a number of the rare males of *Stylops*; what species it may eventually prove to be, will in all probability be determined by the President of The Entomological Society, Sir Sidney S. Saunders, who is at present investigating our British species. It will be seen that the register records no less than seventeen males being obtained; since the table was drawn up, Mr. Enock has secured another male,—certainly under circumstances that throw a new light on the history of *Stylops*. The stylopized bees were kept in a box that contained a good bed of moist sand; they were kept well supplied with fresh flowers, and at the expiration of twenty days it was supposed that all the males of *Stylops* must have emerged from the bees, in fact, the latter were also supposed to be dead; but, upon removing the gauze that covered the box, a bee flew out, which, upon examination, was found to have an undeveloped male of *Stylops* still remaining between the abdominal segments. This was a matter of great surprise to Mr. Enock, who, immediately on making the discovery, removed the cap of the pupa-case of the *Stylops*, when, to his increased astonishment, he saw it move its antennæ; it very shortly emerged and expanded its wings, was secured, and prepared as a specimen for the cabinet.

Whether in a natural state the *Stylops* would have remained such a length of time as twenty days as ascertained, and probably some three or four days before Mr. Enock captured it, it is impossible to determine. I have, myself, bred six males of *Stylops*, each at different periods; but I never found the males longer than two days before they emerged after being captured; in fact, I think only on one occasion did more than one day elapse before they emerged.

One misfortune has attended Mr. Enock's captures—he totally destroyed eight specimens in endeavouring to prepare them for microscopic objects.

All the stylopized bees, with, I believe, a single exception, were *Andrena atriceps*, the other species being *Andrena Afzeliella*. Since the tables were drawn up, Mr. Enock has taken *Andrena convexiuscula* and *A. labialis* infested by females of *Stylops*. All the captures were made at Hampstead Heath.

F. SMITH.

April 5th.—Wind west, and very stormy; dull morning; went to Hampstead Heath; was on the ground at ten o'clock; the rain soon came on; I noticed numbers of *Meloe* on the march; at eleven o'clock the sun shone out, and very soon I saw a bee, but it was carried away by the strong wind; soon after I caught one, examined it, and found it was stylopized; a second and a third taken were also stylopized. I took two or three more, and then the rain came down again, which put a stop to my work; it continued to rain till half-past eleven, when the sun again shone out; when the bees again appeared. I caught numbers up to half-past twelve, when I left the heath, having taken thirty-six specimens of *Andrena atriceps*. Ten were stylopized, as follows:—

1 ♀	<i>Andrena</i>	containing	2 ♀	<i>Stylops</i>	
4 ♀	"	"	1 ♀	"	each.
2 ♂	"	"	2 ♀	"	"
1 ♂	"	"	3 ♀	"	"
2 ♂	"	"	1 ♂	"	"

April 6th.—Wind S.W.; warm morning; arrived at the Heath at half-past nine: the first bee I caught had a female *Stylops*. The sun shone from ten to half-past eleven, during which time *Andrena atriceps* was very active; I took a considerable number with my net. At half-past eleven the sun went in, when I took the bees resting on the ground; at a little before half-past eleven I saw something flying in a very peculiar manner over a broom-bush; I captured it with my net; it proved to be a male of *Stylops*. I think I should now know a *Stylops* on the wing the moment I saw it, its flight is different to anything else I have ever seen; a very peculiar unsteady flight, something like an *Ephemera*, what I should call an uncomfortable flight, up and down, this way and that way, in fact at all angles, not keeping in one direction more than a few inches, perhaps for about six or seven. My captures were as follows:—

Bees.		<i>Stylops.</i>		Time.	Bees.		<i>Stylops.</i>		Time.
♀	...	♀	...	9.30.	♂	...	♀	...	11.5.
♀	...	♀	...	"	♂	...	...	...	11.30.
♂	...	...	♂	9.40.	♂	...	...	...	"
♂	...	♀	...	"	♂	...	...	♂	11.45.
♂	...	...	♂	9.45.	♂	...	2 ♀	...	"
♂	...	♀	...	"	♂	...	♀	...	"
♂	...	♀	...	"	♂	...	...	2 ♂	11.50.
♂	...	♀	...	"	♂	...	♀	...	12.0.
♂	...	♀	...	10.0.	♂	...	2 ♀	...	12.15.
♂	...	...	♂	"	♂	...	...	2 ♂	"
♀	...	♀	...	10.10.	♂	...	...	♂	"
♂	...	♀	...	"	♀	♂	"
♂	...	...	♂	10.15.	♂	...	♀	...	12.20.
♂	...	...	♂	"	♂	...	2 ♀	...	"
♂	...	♀	...	"	♂	...	2 ♀	...	"
♂	♂	"	♂	...	♀	...	"
♂	...	...	♂	"	♂	...	♀	...	12.30.
♂	...	♂	...	11.0.					
♂	...	2 ♀	...	"	36	...	27	...	17

On this second day, the thirty-six bees taken contained forty-four specimens of *Stylops*—seventeen males and twenty-seven females; these, added to the captures on the previous day, make a total of forty-six bees, that contained in all nineteen males and forty females.

F. ENOCK.

DESCRIPTIONS OF THREE NEW SPECIES OF *LYCENIDÆ*.

BY W. C. HEWITSON, F.L.S.

HYPOCHRYSOPS DELICIA.

Upper-side: metallic silvery-white, tinted (as the light falls upon it) with blue or green. Anterior wing with the outer half dark brown. Posterior wing with the costal and outer margins rufous-brown: the anal angle scarlet.

Under-side: stone colour. Both wings with a series of scarlet spots on the outer margins traversed by a silver line. Anterior wing with a large, irregular, longitudinal, scarlet spot in the cell bordered with black and silver, a minute black spot also in the cell: three black spots below these, a hexafid scarlet transverse band beyond the middle, bordered by black and silver. Posterior wing with the base of the costal margin and several transverse spots scarlet bordered with silver: one spot near the base succeeded by three spots, by a band of four spots, by two spots near the middle, and by a band of seven spots (one bifid).

Exp. $2\frac{1}{10}$ inch. Hab. Australia.

In the collection of Henley G. Smith.

A splendid species, most nearly resembling *H. ignita* on the under-side.

HYPOCHRYSOPS BUBASES.

Upper-side: cerulean-blue with all the margins broadly brown. Posterior wing with two slender tails, the outer margin rufous, broadest near the anal angle, where it is bordered above and below with silver.

Under-side: rufous. Both wings undulated throughout with black, and marked by several irregular black spots, and by numerous small silvery-blue spots, some of which form two sub-marginal bands.

Exp. $1\frac{6}{10}$ inch. Hab. Malacca (Wallace).

In the collection of W. C. Hewitson.

APHNEUS VIXINGA.

Upper-side : dark red-brown. Anterior wing with a small white spot at the end of the cell. Posterior wing with two tails, the anal angle rufous.

Under-side : rufous, pale. Both wings with many silver spots. Anterior wing with the base yellow, succeeded by transverse bands of two spots, of three spots, and of four spots (one of which is linear), by two spots near the costal margin, and by a band near the outer margin of six spots, all silver bordered by red-brown; a sub-marginal series of brick-red spots. Posterior wing with several spots from the base to the middle, succeeded by a transverse band of six spots, by two linear spots on the abdominal fold, a spot at the apex, and a spot near the anal angle, all silver, bordered with brick-red: some spots near the outer margin and the anal angle brick-red: a sub-marginal series of dark brown spots decorated with silver near the anal angle, a yellow spot at the anal angle.

Exp. $1\frac{6}{10}$ inch. Hab. Borneo (Lowe).

In the collection of W. C. Hewitson.

Much larger than any hitherto known species of this very beautiful genus.

Oatlands, Weybridge :
June, 1875.

Note on capture of Aphodius villosus, &c., at Mickleham.—At the beginning of the present month, whilst beating hazel for *Cryptocephalus coryli* and *nitidulus* (of both of which I obtained a few examples) at Mickleham, I was much staggered at finding a specimen of the rare *Aphodius villosus* in my umbrella; how it got there I know not, unless on the wing at the time. The captures of this species are certainly of an accidental character, it only once, I think, having been found in dung in this country; this will be the first time it has been recorded from so near London.

Only a few minutes before this, my friend, Mr. Marsh, who was with me at the time, picked up a ♂ example of *Megapenthes lugens* from a leaf of the common stinging nettle,—an extraordinary capture.

Bembidium Sturmi has also recently occurred to me on the banks of the Mole here. It looks as if Mickleham was not yet exhausted of its Coleopterous fauna.—G. C. CHAMPION, 274, Walworth Road, London: June 1st, 1875.

Compsochilus palpalis at Caterham.—On the 8th of June, whilst sweeping towards evening on the banks of a small pond at Caterham, Surrey, I was much gratified at finding a fine example of *Compsochilus palpalis* in my sweeping net.

This will make the fourth British example, all from different localities, viz.:—Tunbridge and Sheerness, Kent, and Wandsworth and Caterham, Surrey.—Id.

Note on Orchestes iota; with a moral.—My captures of *Coleoptera* this spring have been few and unimportant, and many good species have been very rare or altogether absent. I have, however, again found a few *Cathormiocerus maritimus*, Rye, and eight specimens of an *Orchestes*, which Mr. Rye has named for me *iota*, Fab. He also tells me that, according to M. H. Brisout de Barneville's Monograph, this species feeds on birch, *Salix caprea*, and poplar; but all my specimens were beaten from *Myrica Gale*, in the latter end of May. On receiving his note I went again to the locality, and carefully beat the willows, but failed to obtain any, yet I again beat four from the 'sweet gale.'

This species is, I think, rare, which is no doubt owing to the difficulty of working a bog in the spring when full of water; and, had not the present season been a dry one, I could not have got at it. As it was, I had to step from tuft to tuft, carefully avoiding the water between, which was in some places very deep. An incident occurred, whilst making my last search in this place, which I will relate, as it may serve as a caution to young collectors. While at work on the middle of the bog, I noticed a well-dressed person eyeing me with evident curiosity, apparently wondering what I could possibly be at with an umbrella up-side down, under a burning sun; and, seeming unable to resist the temptation of satisfying himself, he essayed the somewhat difficult feat of getting at me. The first few steps he managed very well, but I think he must have mistaken the close covering of water-crowfoot on the water for solid ground, for he took a step on the treacherous weed and then disappeared. The next I saw of him, he was standing up to his hips in water and mud, clearing his eyes and mouth. He had unwillingly taken "a header" into the deepest part of it. He emerged from the side farthest from me, and at least three miles from any house that could have been his home,—a wetter, and, let us hope, a wiser, man.

Application: do not let your curiosity get the better of your discretion.—
HENRY MONCREAFF, High Street, Portsmouth: June 15th, 1875.

The Colorado Potato-Beetle.—This insect, which is one of the tetramerous phytophagous *Coleoptera*, was only known up to a few years ago as living in the Rocky Mountains towards New Mexico, where its larvæ fed upon a wild plant of the order *Solanaceæ*, the *Solanum rostratum*. This *Solanum* not being a common plant, and having only restricted localities, the *Doryphora*, according to the laws of nature, was also a rare insect, occurring where the *Solanum rostratum* existed, and only multiplying in a ratio proportionate to that of the limited distribution of the plant. Note this well; it is essential.

The civilised white man has the bad habit (concerning wild plants and the insects that feed upon them), in proportion as he spreads over the globe, to extend also the cultivation of plants that he uses for food, or which are useful to him in any way. He thus substitutes an artificial flora for the natural one of the countries he invades, and the former becomes still more restricted or vanishes altogether.

The phytophagous insects, whose lot is linked to that of the native plants, follow the same road. Without going beyond our own country, how many times have I not heard a Lepidopterist anathematise the progress of cultivation in the Campine, a progress that each year causes 'good species' to disappear. How many times also

have the botanists returned disappointed at not finding a single species of the rare plants that always used to occur at given localities. In a word, man and his civilization always impoverish the natural flora and fauna wherever he establishes himself.

When the white man and his cultivation arrived in contact with the *Doryphora* in the west of the American Continent, the evil commenced. If the American had there cultivated wheat, maize, or oats, the *Doryphora*, starved by the diminution of *Solanum rostratum*, would have proceeded quietly towards total extinction. Unfortunately, man brought with him the cultivated *Solanum*—the potato—in great quantities, a plant that suited the beetle perfectly, and which it hastened to attack, multiplying in proportion to the food offered to it, so that, increasing plentifully, the species, from one potato field to another, has invaded almost the whole of the North American Continent, to the great detriment of the cultivators, who did not reckon upon having laboured for the benefit of these little pests.

Everybody is acquainted with the fears entertained of the possibility of the invasion of Europe by these insects; everybody knows that measures are proposed to prevent it; but everybody does *not* know that these measures appear to be based upon grave errors concerning the habits of the *Doryphora*. The argument is:—this is an insect that attacks the potato; therefore stop the importation of potatoes from America! Afterwards, when it is shewn that the *Doryphora* has absolutely no connection with the tubers, and eats only the green parts of the plant, instead of abandoning the order of ideas that inspired the projected measure, it is sought to be justified by the fear of the presence of larvæ or pupæ in the earth that accompanies the sacks of potatoes.

I need not tell you that if a larva or pupa of the *Doryphora* quitted America in a sack of potatoes it would be crushed long before reaching us, for it is soft and very delicate. More than that; one individual would not suffice, it would be necessary to have the two sexes in a condition favourable for propagation upon their arrival here.

According to Dr. Chapuis, an authority upon this family of insects, neither larva nor pupa occurs at the time when potatoes are collected. At that epoch, the *Doryphora* is in the perfect state, and seeking quarters in which to hibernate, which has induced Dr. Candèze to state, at our (Belgian) Entomological Society, that bales of cotton would be more likely to bring it here than sacks of potatoes. In fine, in this state, it might arrive here by a thousand different modes more probable than by those by which it is proposed to hinder it. Who knows, if it may not be that the Universal Exhibition at Philadelphia in 1876, and the materials used for packing all that is returned, are fatally destined to bestow this plague upon Europe? Will one for this send nothing to this Exhibition; will one break all relations with the United States?—Evidently not.

Another question is to know whether the *Doryphora* would be able to acclimatise itself in Europe if once it should penetrate to it. Many say yes, many say no. My learned colleague, Dr. Candèze, does not hesitate to deny absolutely the possibility of such an acclimation; but his reasons do not appear to me the most convincing.

In the doubt that exists, I am asked what is to be done? Wait quietly is my advice. Keep a sharp look-out, and if the detested beetle should appear, act energetically in the same way as if it were the cattle-plague. Let us have no commissions,

no reports, no verbosity, but summary and rapid execution, not only upon the insect and its eggs, but upon the potatoes themselves, which should be destroyed radically (with indemnification of the injured cultivators) in those places where the pest appears, within a stated radius.

If the insects are destroyed with the plants that carry them, those that escape destruction in this way will perish from hunger. Further, if the culture of potatoes and other *Solanaceæ* (tomato and tobacco) be forbidden within a stated district for a year or two, and the *Solanum dulcamara* and *nigra* be carefully extirpated, all disaster to our agriculture will be prevented.

In France, where another insect pest attacks the vine, and even menaces its annihilation, it would have been good had the evil been abruptly stopped at its origin, and to-day one would not have regretted an indemnity well placed at the commencement, not even if it amounted to several hundred thousand francs. In place of that, commissions have been named without number, all kinds of remedies have been tried, volumes and pamphlets enough to fill a library have been written, much money has been spent, much time lost, &c., and the *Phylloxera* has none the less continued its work. It now covers nearly all the departments in which the vine is cultivated, threatening the complete annihilation (unless unexpected help is obtained) of one of the principal sources of the wealth of our neighbours.—A. PREUDHOMME DE BORRE, in the Bulletin de la Société Linnéenne de Bruxelles, 1875.

[We have translated the above (from a separate pamphlet-form) as containing some very sensible observations upon a subject that is now attracting general attention in Europe. Later on, we hope to reproduce a paper by a well-known English Coleopterist. Up to the present, the importation of potatoes from America has been forbidden by France, Belgium, Germany, Holland, Russia, and Spain. Great Britain has contented itself by a species of *surveillance*.—EDS.]

Occurrence in Britain of Cladius Brullæi, Dahlbom.—To the list of the British species of *Cladius* given in Vol. xi, p. 253, may now be added *Cladius (Priophorus) Brullæi*, Dahlbom, which I have reared from larvæ found last autumn in Cadder Wilderness, feeding on *Rubus idæus*.

The following is a description of the full-fed larva.

Head deep shining black. Feet and claspers white. Upper part of the body to the spiracles deep brownish rather glistening black; the sides below the spiracles glistening white. The base of the 2nd and the anal segment white. As usual with the larvæ of this genus, the body is covered with tubercles, from which proceed long hairs. Length about 9—10 lines.

In its habits and pupation the larva does not differ from *C. padi*. Dahlbom mentions *Rubus fruticosus* as the food-plant.—P. CAMERON, Jun., 136, West Graham Street, Glasgow; 10th June, 1875.

Note on the gall of Aphilothrix radicis.—On 20th May I noticed, at Ardlui, Loch Lomond, some fresh galls of *Aphilothrix radicis* on the trunks of oaks, at a

height of 5–6 feet from the ground, instead of at the roots, as is usual. The galls were then quite soft, of a white colour more or less tinged with red. In one gall I observed a couple of the inquiline, *Synergus incrassatus*, deposit their eggs.

Mr. Frederick Smith has recorded a similar occurrence in the case of *Biorhiza aptera*, another root-frequenting gall-fly.—ID.

Note on setting small Hymenoptera.—In the somewhat voluminous extract from Dr. Kriechbaumer's account of his method of setting *Hymenoptera*, which appeared in last month's issue, there are one or two points to which I desire to take exception publicly, lest any one should be induced to enter upon the study of this group of insects under the guidance of this plan, which probably appears easier and less laborious than the process of carding, at least to those who can understand the description given. Without any wish to be captious, I must confess that some sentences are by no means clear to myself, but then possibly a perusal of the original document in its entirety might clear up such difficulties as are caused by an abridged translation. The process described by Dr. Kriechbaumer cannot for a moment be admitted as even possible in the case of those minute *Hymenoptera* (*Proctotrupidæ* and *Chalcididæ*) which are themselves hardly larger than a pin's point, and Dr. K. appears unaware that in most cases the thoracic plates are amongst their chief distinguishing characteristics, for these must of course perish if the insect is impaled on a comparatively monstrous pole almost the thickness of its body. I think if any one will read Mr. Marshall's account in the Ent. Ann. for 1873, p. 128, he will be convinced that, at least for small and medium-sized insects, no plan is equal to that of carding.

For large insects, Dr. K.'s plan is doubtless very effective, but I fail to see the superiority which is claimed for it over Mr. Smith's plan; and in fact I, having practical experience of this latter method, feel convinced that no other plan can display the insects more beautifully or regularly than it. The only difference between the two modes is that Mr. Smith's is possibly more rapid.—A. O. WARD, 13, Lower Park Fields, Putney.

On preserving Hymenoptera, Diptera, &c.—The article by Dr. Kriechbaumer, extracted at page 17 of this volume, was, I presume, written for the especial benefit of continental entomologists, who are more particularly addicted to pinning insects. With British entomologists the case is different. In this country, pins are very much more apt to corrode than they are on the continent; we are therefore under the necessity of employing a method of setting which is adapted to our climate. The larger *Hymenoptera* suffer less from pinning than most other orders of insects; but so great a proportion are very minute, that for these, pinning or even mounting on fine silver wire is a most laborious and unsatisfactory method of displaying them, as compared with setting on card by means of gum tragacanth; and, in a very great number, perforation is simply impossible on account of their microscopic size. Several eminent British entomologists have a prejudice against carding which it is difficult to understand, but no objection to it ever comes from those who have had sufficiently long practice at it to be able to set well; and the longer they are accustomed to it, the more they appreciate it for the facility it affords for the critical examination of specimens, as well as the better preservation of them. Bad carding

is not a bit better than bad pinning, and it is perhaps owing to the careless manner in which it is sometimes done, that the objections to it principally arise. It is quite possible to mount a small insect on card so as to equal in appearance the drawing of an experienced artist, and this is what ought to be aimed at; but the same cannot be said of pinning, at least in *Hymenoptera* and *Diptera*. And if a good coloured figure of an insect is valuable, how much more so is the insect itself when exhibited in a similar style?

I should recommend the carding of about nine-tenths of the British *Hymenoptera*, and of nearly all the *Diptera*, certainly all the *Tipulidæ*. But of all insects not of minute size, which it is desirable to card, there are none for which it is more essential than the *Ephemeridæ*. With the sole exception of the eyes, they preserve well, and the species are recognisable. I can show well-preserved specimens set thirteen years ago.

Let it be borne in mind that the question under discussion is not one of science, but of art, and its decision rests with the artist as well as with the scientific entomologist; but if the artist is also a scientific entomologist, he will know what are the parts of an insect which it is needful to display carefully, so as to be fit for examination with the microscope.—BENJN. COOKE, Bowdon, Cheshire: 12th June, 1875.

Deilephila livornica in Glamorgan.—I have to-day had a live specimen of *D. livornica* brought me. It was taken in a cottage in this town.—EVAN JOHN, Llantrisant: 27th May, 1875.

Reviews.

ENTOMOLOGISCHE NACHRICHTEN. Nos. 1—4. Putbus. January—February, 1875.

We have received the first four numbers of this new fortnightly periodical edited by Katter. It seems to aim at taking the place of the "Correspondingblatt," formerly edited by the late Dr. Herrich-Schäffer. Each part consists of eight octavo pages. There is little original matter in the parts before us, and we content ourselves by announcing the advent of the journal, and by the remark that, if it is to be a success, it can only be obtained by a considerable improvement in future numbers. Most of our readers (like ourselves, till we looked it out on the map) are probably ignorant of the geographical position of Putbus, so it is well to explain that it is a small town in the island of Rügen in the Baltic.

SEVENTH ANNUAL REPORT ON THE NOXIOUS, BENEFICIAL, AND OTHER INSECTS OF THE STATE OF MISSOURI: by Charles V. Riley, State Entomologist. Jefferson City, 1875; pp. 1—196.

It has always afforded us great pleasure to notice Mr. Riley's Annual Reports, and this sensation is by no means lessened on the present occasion. Probably the range of subjects treated upon is not so wide as in some former Reports, but we observe that the author's accustomed careful and exhaustive treatment has in no respect diminished; perhaps in some respects the Report has profited by concentration. Nor must we forget the elaborately careful drawings from the author's own pencil, and the (on the whole) equally painstaking way in which these drawings have been treated by the engraver.

The contents include the "Colorado Potato-Beetle," the "Chinch Bug," the "Flat-headed Apple-tree Borer," "Canker Worms," the "Grape Phylloxera," and the "Rocky Mountain Locust," and almost each article is an exhaustive life-history. The Colorado Beetle is, of course, the much-dreaded *Doryphora 10-lineata*; the Chinch Bug is *Micropus leucopterus*; the Apple-tree Borer one of the *Buprestidæ* (*Chrysobothris femoratus*); Canker Worms are species of *Anisopteryx*, not unlike our *A. æscularia*; the Locust is *Caloptenus spretus*. In connection with this latter insect, there is a map with shaded parts indicating the counties in the State of Missouri that suffered from it in 1874, with the direction whence the insect came, &c.

At a time when so much alarm is evident in Europe at the possibility of an invasion of the Colorado Potato-Beetle—an alarm that has induced the majority of the European Governments to prohibit the importation of potatoes from America—it appears to us that Mr. Riley's latest published opinions may not be uninteresting to our readers, and we therefore quote them *in extenso*.

He says (p. 8):—"I must repeat the opinion expressed a year ago—and which has been very generally coincided in by all who have any familiarity with the insect's economy—that if it ever gets to Europe, it will most likely be carried there in the perfect-beetle state on some vessel plying between the two continents. While the beetle, especially in the non-growing season, will live for months without food, the larva would perish in a few days without fresh potato tops, and would, I believe, starve to death in the midst of a barrel of potatoes, even if it could get there without being crushed; for while it so voraciously devours the leaves, it will not touch the tubers. The eggs, which are quite soft and easily crushed, could, of course, be carried over on the haulm, or on the living plant; and while there is a bare possibility of the insect's transmission in this way, there is little probability of it, since the plants are not objects of commercial exchange, and the haulm, on account of its liability to rot, is not, so far as I can learn, used to any extent in packing. Besides, potatoes are mostly exported during that part of the year when there are neither eggs, larvæ, nor potato-vines in existence in the United States. There is only one other possible way of transmission, and that is in sufficiently large lumps of earth, either as larva, pupa, or beetle. Now, if the American dealers be required to carefully avoid the use of the haulm or shaw, and to ship none but clean potatoes, as free as possible from earth, the insect's transmission among the tubers will be rendered impossible; and when such precautions are so easily taken, there can be no advantage in the absolute prohibition of the traffic in American potatoes. As well prohibit traffic in a dozen other commodities, in many of which the insect is as likely to be taken over as in potatoes, and in some of which it is even more likely to be transported. The course recently adopted by the German Government, in accordance with the suggestion made in my last Report, is much more rational, and will prove a much better safe-guard. It is to furnish vessels plying between the two countries with cards giving illustrated descriptions of the insect in all stages, with the request that passengers and crew will destroy any stray specimens that may be found. Let England and Ireland, together with the other European Governments, co-operate with Germany in this plan, and have such a card posted in the warehouses of seaport towns, and in the meeting rooms of Agricultural Societies, and a possible evil will be much more likely avoided. Some of the English journals are discussing the question as to whether, with the more moist

"and cool climate of that country, our 10-lined potato-beetle would thrive there even if imported. There cannot be much doubt that the insect will rather enjoy the more temperate climate; for while it thrives best during comparatively dry seasons, both excessive heat and drought, as well as excessive wet, are prejudicial to it. It is argued by others that on the continent of Europe our *Doryphora* would not thrive if introduced. The idea that the climate of North America is less extreme than that of Europe, is rather novel to us of the Cis-Atlantic, and I am decidedly of opinion that they delude themselves who suppose that *Doryphora* could not thrive in the greater part of Europe."

ENTOMOLOGICAL SOCIETY OF LONDON: 7th June, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

W. A. Forbes, Esq., of South Castle Street, Edinburgh, was elected an Ordinary Member.

Mr. Briggs exhibited some specimens of *Zygana meliloti*, bearing a strong resemblance to *Z. trifolii*, and mentioned several instances in which the offspring of *Z. meliloti* exhibited a taint of *trifolii* blood. He suggested that *Z. meliloti* might be only a stunted variety. Mr. McLachlan remarked that the insects of the genus hybridized very freely, and alluded to their pairing several times. Mr. W. A. Lewis had noticed that *Z. meliloti* was by far the most common insect in the New Forest, and as it appeared to have been only discovered of late years, this supported the idea that it was only a stunted variety which had been recently developed there. Mr. Weir said that he had taken the insect twenty years ago in Tilgate Forest.

Mr. McLachlan exhibited a portion of a vine-leaf on which were galls of *Phylloxera vastatrix*, the leaf having been recently plucked in a green-house near London.

The Rev. A. E. Eaton exhibited the insects which he had recently captured in Kerguelen's Island. There were about a dozen belonging to the *Coleoptera*, *Lepidoptera*, and *Diptera*, besides some bird-lice and fleas. They were all either apterous or the wings were more or less rudimentary. One of the *Diptera* possessed neither wings nor halteres.

Mr. Briggs exhibited a specimen of *Halias prasinana*, which, when taken, was heard to squeak several times very distinctly; and, at the same time, a slender filament, projected from beneath the abdomen, was observed to be in rapid motion, and two small spiracles below the filament were distinctly dilated.

The President remarked that he had recently discovered a larva in the body of *Andrena Trimmerana*, which had a long telescopic process in front similar to that of *Conops*, and two reniform processes behind. He had frequently found *Conops* in a species of *Bombus*, but he had never observed it before in *Andrena*. Mr. W. Cole remarked on the great number of different parasites attached to the genus *Bombus*.

The Secretary exhibited some specimens of a minute *Podura*, forwarded to him by the Secretary of the Microscopical Society, having been found on the snow of the Sierra Nevada.

Mr. F. H. Ward exhibited some microscopic slides shewing specimens of a flea attached to the skin of the neck of a fowl.

Professor Westwood communicated a "Description of a new genus of Clerideous *Coleoptera* from the Malay Archipelago."

Mr. McLachlan read a paper entitled "A sketch of our present knowledge of the Neuropterous Fauna of Japan (including *Odonata* and *Trichoptera*)."

Part i of the Transactions of the Society for 1875 was on the table.

NEW GENERA AND SPECIES OF PRIONIDÆ (LONGICORN COLEOPTERA).

BY H. W. BATES, F.L.S.

PARANDRA JANUS, n. sp.

Nigro-picea, punctata, subtus castaneo-rufa; antennis piceis, pedibus testaceo-rufis; mandibulis ♂ paulo elongatis, suprâ carina ad basin valde elevata, intus ante apicem dente valida bifida apice ipso lato bidentato; epistomate 4-sinuato, medio dente triangulari armato.

Long. 11 lin., ♂ ♀.

In form, similar to the common *P. glabra*. The upper-surface (including mandibles) shining pitchy-black; the whole under-surface (including the inflected margin of the elytra) chestnut-red, legs paler. The whole upper-surface is punctulated, the elytra more coarsely so. The thorax is transverse, and the lateral rim visible throughout from above; it is slightly narrowed from the front to beyond the middle, then more suddenly so, and sinuated before the posterior angles, which are distinct and rectangular. The tarsi are similar to those of *P. glabra*, except that the 3rd joint is more distinctly emarginated; the claw joint is furnished with a bisetose onychium.

♂. The forehead between the eyes has two large obtuse elevations; the front edge of the epistome is strongly quadrisinuate, with a simple central tooth. The mandibles are rather short, robust, with the upper carina much elevated, and a double tooth on their inner edge near the apex, with the apex itself oblique and bidentate.

One example (♂) from Dr. Meyer's collection, Menado, Celebes; one ♀, Andai, New Guinea (Signor D'Albertis).

The species is more nearly allied to the West African *P. gabonica* than to the new Caledonian species.

ANOPLODERMA QUADRICOLLE, n. sp.

Cylindricum, nigrum, obscurum, crebre confluentur punctatum; fronte concava, mandibula sinistra basi valide dentata; thorace transversim quadrato, juxta basin subito constricto; tibiis extus multi-denticulatis, apice dilatatis et extus spinosis.

Long. 8 lin., ♂ ♀.

♂. *Antennæ corpore paulo breviores, articulo 3^{io} simplici (4^{to} æquali), 4^o—10^{mo} valde serratis, 11^{mo} precedenti duplo longiori. Trochanteres postici spina longissima acutaque armati.*

♀. *Antennæ thoracis basin haud attingentes, sub-moniliformes, articulis 4—10 intus paululum dilatatæ. Trochanteres simplices.*

This species agrees with none of the four genera of the group *Anoplodermides*, according to Lacordaire's definitions; it partakes of the characters of all of them, with some specialities of its own; and, as it is probable all four will eventually be combined into one, I prefer referring the insect to the typical genus to creating a new one. The eyes are rather finely granulated, widely distant and sharply emarginated. The forehead is concave, narrowed to the epistome, which is vertical and even concave on its front face. The large tooth near the base of the left mandible exists in both sexes, though much longer in the ♂. The palpi have oval terminal joints. The hind part of the head is thick and convex. The thorax is twice the width of the head; transverse-quadrate, but with regularly rounded sides; the somewhat explanated lateral margin terminates in a rectangle near the base, where the thorax is suddenly constricted; the surface in both sexes is covered with circular punctures, which coalesce in irregular patches, leaving irregular and almost impunctate spaces. The elytra are uniformly and coarsely sub-confluent punctate. The tibiæ are covered with sharp tubercles and denticulations, and the external side of their dilated apices is prolonged into a long tooth; the tarsi are linear, about as long as the tibiæ, densely bristly beneath, with the fourth joint well developed and of the same shape as the others, though smaller. The hind trochanters of the male are prolonged as sharp spines, half as long as the femora.

The antennæ of the ♂ are four-fifths the length of the body; joints 1 to 3 are glabrous and shining, the rest are densely and minutely porous and opaque; the 3rd joint is of about the same length as the 4th, but is clavate and simple, whilst the 4th is greatly prolonged at its outer apex like the 5th to 10th. In the ♀ the antennæ are extremely short, with shining moniliform joints, the 3rd and 11th the longest and nearly equal.

Mendoza. From Mr. Edwyn C. Reed's collection.

APOTROPHUS, nov. gen. (fam. *Prionidæ*, sub-fam. *Ctenoscelinæ*).

♂. *Elongato-oblongus*. *Caput pubescens*. *Oculi emarginati*. *Mandibula parum elongata, apice abrupte curvata ibique extus dentata, intus valide unidentata*. *Palpi ut in gen. Ctenoscelis, apice truncati*. *Antennæ 12-articulatæ, corpore multo breviores; articulo 1^{mo} brevi, clavato, 3^{io} cæteris singulis duplo longiori, 4—10 apice intus productis foveisque magnis porosis*. *Thorax transversis, inermis, lateribus rotundatis, vix crenulatis, angulis obtusis; suprâ inæqualis, medio sparsim lateribus con-*

fertim punctatus. Scutellum hirsutum. Elytra postice modice angustata, apice rotundato anguloque suturæ denticulato, supra coriacea, leviter tricostata. Femora lævia; tibiæ intus biserialim spinosæ; tarsi breves, plantis dense breviter pubescentibus, articulo 3^{io} bilobo. Metasternum hirsutum.

A genus of somewhat doubtful position, agreeing with the *Otenoscelinæ* in the spinose tibiæ and the form of the sternal pieces and mandibles, but differing from them entirely in the antennæ, which are much like those of a *Cyrtognathus* (e.g., *C. forficatus*). The thorax may be taken as essentially of the same structure as that of *Otenoscelis*, but with its chief characteristics less strongly pronounced; the sculpture of the surface is not very different from that of *Ot. dyrrachus*, ♂, but the lateral crenulations are very faint, and the anterior angles are not advanced or distant from the neck, whence the sides are rounded so that the widest part is at two-thirds the length.

APOTROPHUS SIMPLICICOLLIS, n. sp.

Nigro-piceus, capite scutello pectoreque aurro-fulvo pubescentibus, elytris fulvo-castaneis; capite antice (cum mandibulis) sparsim punctato, postice crebre punctulato; thorace omnino tenuiter marginato, suprâ nitido; elytris tenuissime ruguloso-punctatis, sub-nitidis; abdomine piceo-ruflo, glabro. Long. 1 in. 9 lin., ♂.

In general form and proportions similar to *Otenoscelis ater*, but much smaller, and differing conspicuously (besides colour) in the narrow thorax, with its anterior angles obtuse and not remote from the sides of the head. The elytra are tawny rust-brown, the rest of the body being dark piceous, with the legs and the abdomen a little redder. The antennæ are only two-thirds the length of the body, robust, and sub-serrated; the short 12th joint is distinctly articulated; the 1st joint is short, and forms a thick curved club; the porose concavities of the joints begin at the outer apex of the 3rd joint, and become successively larger until they occupy the whole outer sides of the terminal joints. The anterior legs are shorter than the others, and the tibiæ relatively much broader.

One male example only; from the Province of Paraná, in Brazil.

DINOPRIONUS, nov. gen. (sub-fam. *Ægosominæ*).

♂. *Corpus magnum, elongato-oblongum, supra glabrum, nitidum. Caput maximum, pone oculos elongatum, crassum. Mandibula exserta, robusta, intus edentata; palpi breves, apice haud dilatati, truncati. Oculi haud exstantes, suprâ angustî. Thorax capite dimidio brevior,*

transversus, antice paulo angustatus, inermis, margine laterali acuto, valde curvato; dorso lævigato. Elytra thorace septies longiora, postice paulo angustata, apice rotundato, supra lævigata, utrinque quadricostata. Prosternum curvatum; mesosternum parvum, triangulare; metathoracis episterna postice valde angustata, acuminata. Abdomen metasterno brevius, segmento quinto ventrali brevi, lato, medio profunde emarginato. Pedes compressi; tarsi angusti, articulis 1—3 parvis, unguiculari cæteris conjunctis plusquam duplo longiori. Antennæ corporis dimidio paulo longiores, articulo primo brevi, crasso, 2^{do} annuliformi, 3^{io} quam primo vel quarto duplo longiori, cylindrico, asperato; 4—10 brevibus subtriangularibus, 11^{mo} paulo longiori.

The essential characters which distinguish this genus from *Ægosoma* are the extremely short and narrow basal joints of the tarsi (which, however, have the usual cushion of dense hairs on the soles), the short and triangular antennal joints from the 4th to the 10th, and the nearly atrophied mesosternum, which forms only a minute triangular plate between the coxæ. The monstrous development of the head is probably sexual. It is far more bulky than, and, exclusive of the exerted robust mandibles, twice the length of, the thorax.

DINOPRIONUS CEPHALOTES, n. sp.

Castaneus, lævigatus, elytris rufo-castaneis; mandibulis extus scabrosis; capite et thorace subtiliter punctulato-rugosis, hoc medio lævi; elytris sparsim tenuissime punctulatis, costis duabus exterioribus ante medium conjunctis, omnibus apicem versus abbreviatis, ibique sub-reticulatis; corpore subtus sparsim pubescenti. Long. 2½ in., ♂.

India.

ÆROGRAMMUS, nov. gen. (sub-fam. *Ægosominæ*).

♂. *Corpus elongato-oblongum, suprà glabrum. Caput postice crassum haud angustatum; oculi suprà angusti, parvi, distantes; mandibula parva, edentata; palpi brevissimi, apice haud dilatati, truncati. Thorax capite paulo latior, quadratus, lateribus fere rectis, inermibus, carina laterali inferiori curvata. Elytra fere parallela, apice rotundato, sutura dentata, suprà utrinque fortiter tricostata. Prosternum arcuatum, apice vix dilatato. Mesosternum planum. Antennæ corpore triente breviores, filiformes, fere glabræ, punctatæ, articulis 5—10 intus sulcatis et porosis, 3^{io} paulo elongato, cæteris gradatim decrescentibus.*

A genus closely allied to *Ægosoma*, but differing very greatly in facies; its chief structural distinctions being the thick posterior part of the head, narrow upper lobe of the eyes, much less elongated third antennal joint, and parallel-sided thorax.

ÆROGRAMMUS RUFUS, *n. sp.*

Omnino testaceo-rufus; capite et thorace densissime granulatis, elytris passim sub-confluentur punctatis, utrinque costis læribus tribus valde elevatis, interiori abbreviata. Long. 1 in. 2 lin., ♂.

Entirely of a clayey-red colour, abdomen somewhat paler; glabrous above, very finely pubescent beneath. The granules of the head and thorax run together and form areoles on the forehead and the disc of the thorax, and there is an imperfect smooth dorsal line down the middle of both. The thorax is a little broader than the head, transverse-quadrate, as broad behind as in front, but with slightly waved sides; the rim of the pronotum runs along the flanks above the acetabula in a curve with the concavity upwards. The elytra are a little broader, and six times longer, than the thorax.

Interior of North-Western Borneo (Lieut. de Crespigny).

ÆGOSOMA ANGUSTATUM, *n. sp.*

Æ. tibiali (White) *affine. Elongatum, angustum, nigro-fuscum, sub-opacum; capite thorace et scutello flavo-pubescentibus, elytris glabris; thorace suprà multituberoso, punctato et granulato, spina acuta laterali, angulis posticis elevatis, acutis; elytris parallelis, subtiliter granulatis, apice inermibus, utrinque costis duabus nitidis, prima ante apicem minus elevata et cum secunda conjuncta. Antennis* (♀) *corpore vix brevioribus.*

Long. 1 in. 4 lin., ♀.

Differs from *Æ. tibiale* by the minutely granulate and strongly costate elytra, and by its narrow linear form. Resembles in shape *Æ. cingalense*, White, but is destitute of the densely laid yellowish pubescence which clothes the whole upper-surface in that species. The first costa of the elytra commences at the base, and is there strongly elevated, towards the middle it becomes rather fainter, and at three-fourths the length unites with the second, which is very strongly raised throughout, but does not quite reach the base or the apex.

Ceylon.

NOTE.—*Ægosoma javanicum*, Redtenb., Coleop. Novara, p. 202, is evidently the ♂ of *Æ. marginale*, Fab.

TEMNESTHES, *nov. gen.* (sub-fam. *Anacolinæ*).

♀. *Gen. Anacolo proxime affinis; differt elytris mox pone basin valde angustatis, apice sub-acutis. Antennæ corpore vix breviores, articulo 2^{do} paulo elongato, 3^{io} quam primo duplo longiori, cylindrico; 5—10*

ad apicem ramum gracilem emittentibus, 4—11 extus tricarinatis. Thorax quadratus, medio utrinque spina longa, robusta, armatus; margine postico medio quadratim lobatus.

Agrees with *Anacolus* in its well-developed second antennal joint; but in sculpture the joints 4—11 have the carinated form of *Myzomorphus*, instead of the numerous striæ of *Anacolus*. The antennæ are longer and more slender than in either genus, and the branches emitted by joints 6—10 are much narrower and more pointed. The thorax is similar in form to that of *Myzomorphus* ♀, but the lateral spine is more median, longer and stronger, and placed much above the lateral rim, and the hind margin is produced into a broad truncated lobe over the base of the scutellum. The prosternal process is broad and flattened; the mesosternum deeply sulcate in the middle. The meta-thoracic episterna are not cut obliquely on their outer side, but are nearly parallelogrammical in outline.

TEMNESTHES LOBICOLLIS, n. sp.

Depressus, subopacus; capite, thorace, palpis et antennis nigro-æneis, elytris violaceis basi late aurantiacis; pedibus, pectoris medio abdomineque flavo-testaceis; capite thoraceque creberrime punctulatis, breviter pubescentibus, hoc inæquali, medio et postice depresso; scutello grosse punctato; elytris grossius sub-confluentem punctatis. Long. 10 lin., ♀.

Broad and plane on the upper-surface, scarcely shining, the thorax, under-surface and legs clothed with a short erect blonde pubescence. The apical joints of the palpi are triangular. The thoracic spines are long, robust, and laterally compressed, and are quite detached from the lateral rim of the pronotum; the surface of the thorax is unequal, and broadly depressed in the middle. The elytra reach to the apex of the third ventral segment; their sutural edge is strongly incurved a short distance behind the scutellum, and each elytron thence tapers to the obtusely pointed apex; their surface is very closely but not finely punctured; the lateral margin is fulvous for a short distance behind the shoulders.

Bogotá. One example so ticketed from Mr. W. W. Saunders' collection.

ERYTHREUS, nov. gen. (sub-fam. *Erythræninæ*).

Sub-familiæ Anacolarum affinis. ♀. Corpus anguste oblongum. Caput verticale; mandibula intus acute unidentata; palpi breves, articulo ultimo conico; oculi valde emarginati, tenue granulati. Thorax sub-quadratus, medio utrinque valide spinosus, carina laterali oblitterata.

Elytra valde abbreviata, vix dimidium abdominis segmenti primi tegentia, apice truncata et utrinque bispinosa. Alæ ut in gen. Myzomorphus etc. plicatæ. Prosternum apice productum, conicum. Mesosternum depressum, angustum. Metasterni episterna parallelogrammica, apice paulo angustata. Pedes valde compressi, asperati; tarsi brevissimi. Antennæ (♀) corporis dimidium vix superantes, sub-serratæ; articulo primo brevi, cylindrico; 3—5 medio valde compressæ (3^{io} cæteris multo longiori); 11^{mo} brevi, sub-rotundato; 3—7 intus 8—11 omnino dense porosis.

The thorax of this extraordinary Longicorn approaches in form that of *Purpuricenus*; but the anterior coxæ are greatly elongated, and lie in transversely elongated sockets like the *Prionidæ*, and there is a trace of lateral rim separating the pronotum from the flanks, lying below the lateral spine and forming an obtuse ridge, so that there is no doubt of its belonging to the *Prionidæ* family. It differs, however, from the *Anacolinæ* (with which at first sight one would be inclined to place it) by the parallelogrammatical metathoracic episterna and other characters.

ERYTHRÆNUS BORNEENSIS, n. sp.

Anguste oblongus, reticulato-punctatus, roseo-ruber, antennis elytrorumque apice macula magna (antice flavo-marginata) nigris.

Long. 10 lin., ♀.

Sarawak, Borneo; one example. The upper-surface is glabrous, the under-surface and legs clothed with fine erect pubescence. The head, epistome, eyes, labrum and mandibles are similar in form to those of *Myzomorphus scutellatus* ♀, but the palpi are very different, being shorter, and having their terminal joints tapering to an obtuse point, and the sides of the cheeks terminate in a long spine. The eyes are much more finely granulated. The antennæ are more robust, steel-black in colour, and having a very short scape very slightly widening from base to apex. The abdomen is very similar to that of the ♀ *Myzomorphus*; tumid, with flexible integument and truncated fifth ventral segment. The short elytra are dehiscant at the suture, broadly and obtusely truncated, with a long sharp tooth in the middle of the apical margin, and another near the exterior angle; like the thorax and head they are covered with shallow punctures or pits, which leave narrow interstices forming an elegant network when viewed under the lens. The tips of the membranous wings are black.

Bartholomew Road, Kentish Town, N.W.:

June, 1875.

ON THE COLEOPTERA OF KERGUELEN'S ISLAND.

BY CHAS. O. WATERHOUSE.

The few species of *Coleoptera* brought to this country by the Rev. A. E. Eaton from Kerguelen's Island, have already been referred to in this Magazine (*ante* p. 2). They are only six in number, and are all apterous; the larger Rhynchophorous insect, which I have named *Canonopsis*, has the elytra united.

The following are the descriptions:—

BRACHELYTRA.

ALEOCHARIDÆ.

PHYTOSUS ATRICEPS, *sp. n.*

Rufo-testaceus, breviter pubescens, capite abdominisque segmentis quatuor basalibus nigrescentibus. Long. $1\frac{2}{3}$ lin.

Statura *P. nigriiventris*, at paulo latior. Rufo-testaceus, vix nitidus. Antennis capite thoraceque conjunctis vix longioribus, apicem versus parum incrassatis, articulis tribus basalibus elongatis, primo secundo paulo longiori, tertio præcedenti breviori, elongato-obconico, quarto sub-quadrato, reliquis nigrescentibus, 5—10 brevibus, penultimis 4 transversis, articulo ultimo ovato. Capite rotundato, subtiliter crebre punctulato, postice carina transversa circumdato. Thorace capite paululo latiori, longitudine vix latiori, suprâ depresso, subtilissime coriaceo, basin versus paulo angustato, angulis rotundatis. Elytris thorace vix angustioribus, basin versus angustatis, longitudine $\frac{1}{3}$ latioribus, subtilissime coriaceis, humeris obliquis. Abdomine nitidiori, nigrescenti, apice rufescenti, lateribus fere parallelis.

A single example.

The tarsi in this species present no particular difference from those of *P. nigriiventris*; the claws, however, are distinctly longer and more slender.

RHYNCHOPHORA.

BRACHYDERIDINÆ.

CANONOPSIS, *gen. nov.*

Rostrum short, thick, truncate at the apex; antennal scrobes small, deep, and somewhat reniform, open in front. Antennæ placed very near the apex of the rostrum, long, but not very slender, scape just reaching the front margin of the thorax, slightly enlarged at the apex; funiculus with the 1st and 2nd joints elongate, the 1st rather longer than the 2nd, 3rd joint short (about two-thirds the length of the 2nd), the 4th, 5th, and 6th joints globular, the 7th a little broader than the

6th, the club cone-shaped. Eyes round, moderately prominent. Thorax as long as broad, gently constricted in front and behind the middle, truncate in front and behind. Scutellum very small and triangular. Elytra not broader than the thorax at their base, convex, gradually enlarging to the middle, and then again narrowed to the apex. Wings absent. Legs moderately long, femora strongly clavate; anterior tibiæ nearly straight; apex of the posterior tibiæ truncate, hollowed, the margins ciliated. Tarsi spongy below, the 1st joint as long as the two following together, the 4th joint a little longer; the claws curved, separated.

Intercostal projection of the abdomen wide, nearly straight in front and at sides; 3rd and 4th segments equally short, much shorter than the 2nd segment. General form elongate, sub-fusiform.

This and the following genus appear to me to be evidently allied to *Brachyderes*.

CANONOPSIS SERICEUS, *sp. nov.*

Sub-fusiformis, convexus, flavo-griseo-sericeus. Antennis piceis, clava nigra. Fronte fovea magna impressa. Thorace latitudine haud longiori, supra longitudinaliter canaliculato, canalicula ante medium expansa atque utrinque tubercula obsoleta instructa. Elytris basi thorace haud latioribus, at $3\frac{1}{2}$ longioribus, elongato-ovalibus, punctato-striatis, interstitiis vix convexis, interstitio secundo vittis duabus velutinis nigris ornato. Femoribus basi piceis.

Long. $5\frac{1}{2}$ lin., elytr. lat. 2 lin.

Many examples.

AGONELYTRA, *gen. nov.*

Rostrum short; antennal scrobes small, round. Antennæ placed close to the apex of the rostrum, rather stout, scape reaching to the front margin of the thorax; funiculus with the 1st and 2nd joints slightly elongate, sub-equal, the 3rd to 7th joints very short; club elongate cone-shaped. Eyes round, very slightly prominent. Thorax as long as broad, truncate in front and behind. Elytra with distinct shoulders, well embracing the abdomen; each elytron with the apex broadly rounded. Wings wanting. Legs moderately long; femora not very much thickened towards the apex; tibiæ nearly straight, the apex hollowed out, the margins ciliated; tarsi with the basal joint a little longer than the second, claw-joint rather longer than the basal; claws separated.

Intercostal projection of the abdomen broad; 3rd and 4th segments equal, much shorter than the previous segments.

AGONELYTRA LONGIPENNIS, *sp. n.*

Elongata, nigro-picea, cinereo-sericea. Capite antice angustato, fronte foveola leviter impresso, rostro suprà bicarinato; antennis piceis, clava nigrescenti. Thorace leviter convexo, longitudine haud latiori, antice posticeque paulo angustato, lateribus medio leviter rotundatis; dorso carina longitudinali nitida. Elytris basi thorace $\frac{1}{3}$ latioribus, fere quadruplo longioribus, medio paulo ampliatis, leviter punctato-striatis, interstitiis planis; humeris obtusis; singulo elytro ad apicem rotundato. Corpore subtus pedibusque piceis, nitidis, femoribus supra tarsisque nigrescentibus. Long. $3\frac{1}{2}$ lin., lat. $1\frac{1}{3}$ lin.

Antennæ moderately long and stout, 1st and 2nd joints of the funiculus slightly elongate, sub-equal, the 3rd joint shorter, the 4th to 7th becoming gradually shorter and slightly transverse. The silky pubescence which covers the head, thorax, and elytra, is fine, and not very close on the former. The elytra strongly embrace the abdomen, and are broadest about the middle, truncate at the base; the shoulders angular, but obtuse. The tibiæ are very slightly flexuous.

Var. Silky pubescence green, appearing golden in some lights.

Many examples.

AGONELYTRA ANGUSTICOLLIS, *sp. n.*

A. longipenni affinis, antennarum funiculo articulis 3—7 transversis, thorace suprà haud carinato, elytris postice latioribus tantùm discrepans. Long. $3\frac{1}{3}$ lin.

This species is extremely close to the preceding; but the antennæ are shorter, owing to the 3rd to 7th joints of the funiculus being transverse, the 6th and 7th very strongly so. There is no distinct carina on the thorax. The elytra are broadest behind the middle, and are very broadly rounded at their apices. The silky pubescence is yellowish.

The male is much narrower than the female.

Four examples.

AGONELYTRA GRACILIPES, *sp. n.*

Nigra, grisco-pubescens. Capite suprà fere plano. Thorace capite paulo latiori, longitudine paululo angustiori, medio parum ampliato. Elytris basi thorace $\frac{2}{3}$ latioribus, ad medium gradatim ampliatis, postice angustatis, convexis, suprà depressiusculis, leviter punctato-striatis, interstitiis planiusculis. Antennis piceis, clava nigrescenti. Pedibus longis, gracilibus; tarsis articulo tertio bene dilatato.

Long. $1\frac{3}{4}$ — $2\frac{1}{3}$ lin., lat. $\frac{2}{3}$ — $\frac{2}{5}$ lin.

The elytra are gently rounded at the base; the shoulders are distinct, but very blunt.

Eight examples.

AGONELYTRA BREVIS, sp. n.

Nigra, ænescens, parce viridi-grisco-pubescens. Rostro suprâ longitudinaliter leviter impresso. Thorace longitudine haud latiori, convexo, antice posticeque angustato, lateribus bene rotundatis. Elytris basi thorace $\frac{2}{3}$ latioribus, $2\frac{1}{2}$ longioribus, ad medium gradatim ampliatis, apicem versus angustatis; convexis, sat fortiter punctato-striatis, interstitiis planiusculis. Antennis piceis; clava magna, nigrescenti. Pedibus nigrescentibus, femoribus basi tibiisque intus piceis.

Long. $2\frac{1}{4}$ lin., lat. 1 lin.

A single specimen only.

British Museum: *July 2nd*, 1875.

DESCRIPTION OF A NEW SPECIES OF LONGICORN *COLEOPTERA*
FROM NEW ZEALAND.

BY D. SHARP, M.B.

ZORION BATESI, n. sp.

Nitidum, læte violaceum, antennis apice fuscis, articulis 3-6 basi albidis; elytris disco singulo macula albida parva; pedibus elongatis, fusco-violaceis, femoribus basi albidis, coloribus abrupte designatis.

Long. corp. vix 3 lin.

Closely allied to *Zorion minutum* and apparently differing therefrom only by the colour, and the more elongate form, the legs and antennæ being notably longer than in the red *Z. minutum*. The size of the spot found on the elytron differs in the two specimens before me, it being in one of them so small as to lead me to believe that in some individuals of the species it may altogether disappear.

Two specimens sent from Auckland, N. Zealand, by Mr. F. Lawson, are all that have yet been received. A more elegant little creature it would be difficult to imagine, and I have great pleasure in naming it after Mr. H. W. Bates, who has recently systematised and greatly added to our knowledge of the New Zealand Longicorn *Coleoptera*. One of the individuals above described is now in Mr. Bates', the other in Mr. R. Lawson's, collection.

Thornhill, Dumfries:

May 29th, 1875.

BREVES DIPTERARUM UNIUSQUE LEPIDOPTERARUM INSULÆ
KERGUELENSI INDIGENARUM DIAGNOSES.

REV. A. E. EATON, M.A.

The following descriptions relate to some of the insects mentioned in the first article of the present volume. The colours specified were for the most part noted in living examples. The affinities of the genera will be discussed in my final report to the Royal Society on the Zoology of Kerguelen's Island. Meanwhile, *Amalopteryx*, *Apetænus*, *Calycopteryx*, and *Anatalanta* may be referred to the *Muscidæ*; *Halirytus* to the *Tipulidæ*; *Limnophyes* to the *Cecidomyiidæ*; and *Embryonopsis* to the *Gelechiidæ*.

Genus AMALOPTERYX, n. g.

Alis anguste linearibus longis, prope bases singulariter transverse replicatis posticeque reflexis, plicâ inter costæ articulationem areæque suturalis basim transiente, apice et margine anticâ breviter setosis; costâ brevissimâ articulatâ abrupte abscissâ, sub-costâ margini anticæ pro costâ continuâ, nervorum cubitalium ad alæ apicem antico pæne, postico plane, excurrente, suturali medium versus margini internæ confluyente, costulâ frenuli paulo costâ longiori nervulâ transversali cubito suturali adjunctâ; capite thoraceque abdomini latitudine æqualibus, bene non dense setosis, oculis remotis, pedibus validis, femoribus posticorum robustis tarsisque proximo articulorum longissimo; abdomine ovato, quinque-articulato, genitalibus protrusis.

A. MARITIMA, n. sp.

Fuliginosa, pedibus setisque atris; capite thoraceque setis erigentibus longis, antennis nigris, abdomine pilis appressis atris; corpore in toto pube microscopice brevissimâ arctissime appressâ fuliginæâ.

Long. corp. 3 mm.

Apud litora communis.

Genus APETÆNUS, n. g.

Alis squamiformibus minutis, halteribus parvis, capite thoraceque vix abdomine angustioribus, corpore bene setoso, oculis remotis, pedibus medioeribus proximo articulorum tarsalium longissimo, abdomine acute ovali sex-articulato genitalibus haud retractis. Larvis inter scopulos maritimos in algis viventibus.

A. LITORALIS, n. sp.

Atra aterrimè setosa, alis nigricantibus oblongis lente ante apices emarginatis satisque costas versus atro setulosis, halteribus pallide

testaceis vel, cum pulvinis, albidis, ore pallido, oculis piceis, abdomine subtus pallido strigâ longitudinali atrâ in maculis duabus ad secundum segmentorum divisâ, lineâ spiraculari pallide cinereâ, ovipositoris proximo et tertio articularum nigro lineatis, ovis pallido ochraceis.

Long. corp. ♂ ♀ 4·5—5 mm.

Habitat inter acervata maritima, larvis pallido griseis in *Enteromorphâ* viventibus.

Genus CALYCOPTERYX, *n. g.*

Pæne aptera, alis minutissimis gemmascentibus halteribusque brevibus et parvis, capite thoraceque vix abdomine angustioribus setulis raris brevissimis, oculis remotis, pedibus longis proximo articularum tarsalium secundo longiori, abdomine anguste lineari-ovato sex-articulato, genitalibus protrusis. Larvis in quisquiliis viventibus.

C. MOSLEYI, *n. sp.*

Atro-corvina, pedibus atris, tarsis alis oculisque piceis, facie coxisque aurantiacis, vertice antice transverse facile quasi crista galli tenuiter inflato; setis thoracis vix perspicuis atris, corpore toto alisque pube microscopice brevissimâ subolivaceâ appressâ vestitis, setulis super abdominem atris, minutis interspersis, ventre luteo vel aurantiacô, genitalibus antice versis.

Long. corp. ♂ 8—9, ♀ 8—10·5 mm.

Habitat copiose super *Pringleum antiscorbuticam*, larvâ in foliis marcidis vivente.

Genus ANATALANTA, *n. g.*

Aptera anhalterata, capite thoraceque longitudine abdomini subæqualibus sed multo angustioribus, longe et sparsissime setosis, oculis remotis, pedibus mediocribus, postremi tarsorum proximo articularum secundo breviori, abdomine late ovali depresso sex-articulato, genitalibus intus susceptis. Larvis carnivoris.

A. APTERA, *n. sp.*

Nigra, oculis pedibusque piceis, femoribus suprâ nigricantibus, corpore pedibusque pilis microscopice brevissimis appressis atris creberrime vestitis; capite utrinque supra oculos setis divergentibus erectis longis duabus atris duabusque ad ocellos brevioribus depressis, fronte utrinque in genâ setâ curvatâ; mesothorace suprâ utrinque setâ patente longâ unâque reclinatâ brevi, postice breviter quadri-setoso; metathorace in dorso quoque quadri-setoso intermediis setarum extimis paulo brevioribus.

Long. corp. 5—5.5 mm.

Habitant sub lapidibus litoreis et avium cadaveribus frequentant.

Genus HALIRYTUS, *n. g.*

Capite minimo thoraci paulo retracto, antennis brevibus robustis sex-articulatis, proximo articulorum magno, palpis brevissimis binarticulatis, labro scutiforme, thorace dorso gibbo spiraculis anticis prominentibus, apiculo mesothoracis sparse et brevissime setoso, alis debilimis perminutis spathulatis nervis carentibus, halteribus pedibusque gracilibus longis, his non calcaratis, proximo articulorum tarsalium longissimo, secundo longo, ceteris brevibus; abdomine quinque-articulato ovipositore brevi; mare ignoto.

H. AMPHIBIUS, *n. sp.*

Niger, capite virescenti-griseo, oculis labroque nigris, antennis pallide cinereis, alis halteribusque opace albicantibus, pleuris pedibusque virescenti-griseis, his minute nigro setosis; abdominis segmentis lineis dorsalibus curvatis obliquis et apicibus anguste albicantibus, sparseque apud setularum radices pallido punctulatis; ventre virescenti-griseo apicibus segmentorum pallidis, partibus obscuris nigro circumdatis pallidoque punctulatis, segmentorum aliis in basis medio divergenter nigro bilineatis, aliis nigro strigatis; valvulis ovipositoris proximo articulorum nigro apicali testaceo, laminâ apud ovipositoris basin ventrali scutiformi apiculo bifido, antice nigrâ pallide punctulatâ.

Long. corp. ♀ 4—5 mm.

Habitat inter *Enteromorpham* ab æstu maris ex consuetudine inundatam.

Genus LIMNOPHYES, *n. g.*

Capite parvo paulo thoraci retruso; antennis mediocribus, sparse pilosis, sex-articulatis, proximo articulorum robusto, ultimo longissimo; palpis quinque-articulatis, ultimo articulorum longo; thorace robusto, dorsi antice breviter producto; alis refertis, margine internâ et apicali tenuiter ciliatâ, cubitorum antico in medio furcato ramis simplicibus sub-costæ paulo post furcam nervulo transversali adjuncto, postico brevioriter furcato ramis quoque simplicibus, et suturali simplice; pedibus gracilibus non calcaratis minute spinulosis, proximo articulorum tarsalium longissimo; abdomine acuto, septem-articulato.

L. PUSILLUS, *n. sp.*

Capite thoraceque lutescentibus, oculis nigris, antennis griseis articulo basali pallido, tergo thoracis nigro maculâ magnâ in medio

lateribusque antice ochraceis, pectore mesothoracis nigricante, pedibus griseis coxis albidis, alis vix cinerascens; abdomine opace vire-scenti-grisco, subtus tribus segmentorum apicalium nigricantibus.

Long. 1 mm.

Habitat in locis paludosis inter muscos. Sæpissime in fenestris quoque reperiuntur.

Genus EMBRYONOPSIS, *n. g.*

Palpi labiales longi, sursum curvati, squamis appressis, articulorum proximo brevissimo, secundo mediocri, et tertio acuminato ceteris conjunctim longiori; antennis simplice filiformibus, abdomine longitudine vel ♂ æqualibus vel ♀ paulo brevioribus, articulorum basali aliis parum majori; alis anticis acuminati-ovatis convexis, abdominis maris fere ad apicem, conjugis usque ad medium attentis, sub-costâ vix alæ medio attinente, cubitorum simplicium antico pæne ad apicem medio in apice excurrentibus, postico ab apice quam antico remotiori, et suturali fere ad marginis internæ medium producto, transversalibus carentibus; alis posticis perminutis haud abdomini attinentibus; genitalibus maris appendicibus latissimis, horum superioribus super intermedios late inductis, ano breviter rostrato; ovipositore feminae extensili binarticulato.*

E. HALTICELLA, *n. sp.*

♂ ♀. Fuliginosa ochraceo varia; antennis atris, articulo basali, vertice palpisque ochraceo conspersis; alarum anticis strigâ per medium longitudinali latâ ochraceâ, posticis pallidis; pedibus sub-ochraceis; abdominis lateribus ochraceis; maris appendicium superioribus membranaceis latissimis parabolicis extrinsecus squamosis intus glabris arcte intermediis ubique applicatis; intermediis corneis latissimis rotundis, extus nudis, politis nisi ad bases longe et sparse pilosis, lutescentibus intus pilis ochraceis reclinantibus copiosissime obsitis; ful-turis penis piccis robustis apicibus conniventibus parum attenuatis, subtus setulis obliquis pallidi testaceis bene barbatis; valvularum brevium analium dorsali scaphoideâ carinatâ testacea, ventrali lineari piceâ.

Long. corp. 5—5.5 mm.

Habitat inter *Festucas*, larvis intra surculos vaginasque foliorum *F. Cookii* et *F. erectæ* inventis.

Croydon: 18th June, 1875.

* In maribus *Gelechiidarum* squamis detritis notanda sint—anus in rostro productus valvulis duabus, alterâ dorsali alterâ inferiori, clausus; penis gracilis sub-cylindricus apice inciso bifido vel obliquo; fulture penis Anglicæ "penis-sheaths", vel robustæ vel spiculiformes; appendicium paros duo, inferioribus carentibus (nisi intermediis coalescant) intermediis latissimi magni inarticulati plus aut minus imbricati a superioribus inarticulatis superstrati.—A. E. E.

Occurrence of Psammodius porricollis, Ill., in Cornwall.—At the end of last June, while searching for *Coleoptera* on the beach at Whitsand Bay, a very picturesque, but wild and unfrequented part of the Cornish coast, I was fortunate enough to pick up a single example of a *Psammodius* which has been determined by my friend Mr. G. C. Champion as *P. porricollis*, Ill. This species has already appeared in some of our catalogues, on the authority of a single specimen mixed with *P. sulcicollis*, in the British collection of the Rev. W. Kirby. It is, however, omitted by Dr. Sharp from his catalogue.

I found the beetle on the sand under a tuft of *Ononis* a few yards above high water-mark. Strict searching on this and subsequent occasions has as yet failed to produce any further traces of the insect, beyond a dismembered pair of elytra, which I found a few days ago.—JAMES J. WALKER, R.N., H.M.S. "Swiftsure," Plymouth: July 17th, 1875.

Captures of Coleoptera in the Manchester district.—The following species may be worth noticing:—*Platysoma oblongum*; a single specimen, found under bark of pine several years since. The pine was a fallen one, and I cannot, of course, tell from whence it came.* *Atomaria impressa*, under decaying mugwort (*Artemisia vulgaris*) on the banks of the Mersey, near Northern. *Myrmecoxenus vaporariorum*, under a piece of wood, on a dung-heap, in a farm-yard at Withington, in early spring. *Hydroporus obsoletus*, out of *Sphagnum* on Chat Moss. *Choleva colonoides*, in decaying fungus; *Cis vestitus*, on decayed branches of oak with small *Boleti* growing on them; and a black *Anapsis* (which Mr. Rye tells me is apparently undescribed) conspicuous by its unicolorous antennæ, in decayed branches of oak, and in *Boleti* growing upon the trunks of oaks;—in Dunham Park. *Homalota hepatica* and *Homalium Allardi* have also occurred to me.

I may also mention an enormous species of *Blaps* (larger than *B. gages*), which was given to me alive, found in a cotton mill at Ashton-under-Lyne.—J. CHAPPELL, 1, Naylor Street, Hulme, Manchester: July, 1875.

On capturing, killing, and setting Hymenoptera.—I read in the June number of this Magazine, with some surprise, an article "On killing and preserving *Hymenoptera*," the recommendations contained in which I am totally unable to discover the utility of publishing. I am in the constant habit of seeing collections of *Hymenoptera*, brought to me for identification or otherwise, and I am delighted at their perfect state of preservation; they are well pinned, well set, and leave nothing to be desired; these, I usually find, are prepared according to my own method.

Dr. Kriechbaumer's belief that the method he recommends is the best that can be adopted, results from 30 years' practice; but, after mature consideration, I come to the conclusion that if it were put into practice by myself, the result would be the spoiling of three-fourths of a season's collecting.

The method of killing *Hymenoptera* is, I admit, of great—I may say vital—importance. I quite agree with Dr. Kriechbaumer that sulphuric ether, chloroform, benzine, or cyanide of potassium should never be used; but I have never found, by the use of any of these (I have tried them all), that the limbs "became, very soon,

* Mr. Chappell has submitted this insect (a well carded and unpinned specimen) to me. The genus being doubtful as British, it is much to be regretted that Mr. Chappell, who has only recently seriously occupied himself with *Coleoptera*, did not at the time of capture know the importance of obtaining evidence as to the tree in which his insect was found.—E. C. R.

tender and stiff": on the contrary, I have found them become hard and rigid; so much so, that I have found it difficult afterwards to relax them into a fit state for setting. It is also stated that the use of the above materials renders the chance of preserving specimens very difficult, if not impossible; I can only understand this by supposing the word 'preserving' to signify 'setting.'

I have not, of course, tried the method recommended, nor am I likely to do so, since my own method, employed by me for the last 38 years, has enabled me to form a collection life-like in appearance, every specimen being symmetrically set with its wings and legs expanded in a manner that enables me to examine every part, and the tongue also frequently extended, so that the genus to which an insect belongs can be readily determined.

Now, what is the method I am advised to adopt? I am to procure a number of glass bottles, which are to be half-filled with dried moss; those intended for the smaller species are to have pieces of paper, to enable me more readily to find the insects when emptying the bottles; each bottle is to be charged with sulphuric vapour, obtained by inserting a lighted sulphur match; the bottles thus charged are to be closely corked; the vapour, we are told, does not "easily evaporate," and insects can be put into it two or three hours after they have been caught, when they soon die. How they have been treated during these "two or three hours" I am not informed; but, from what I read afterwards, I conclude they have been writhing on pins pierced through the thorax,—to which I decidedly object. This method, moreover, entails the total destruction of the contents of a bottle, should it get hot by exposure to the sun, as the vapour then turns to liquid; in which case, all pubescent insects must be entirely spoilt, and others, less pubescent, be very materially deteriorated.

My advice is, never pin any living Hymenopterous insect. It is unnecessary; and every pubescent specimen is more or less (humble-bees entirely) spoilt by so doing; more or less liquid is sure to ooze from the wound in the thorax and mat the pubescence.

Having caught a bee or wasp in my net, I am advised to use a pair of pliers and seize the insect by the leg, in order to put it in the bottle:—this appears to me a bungling mode of proceeding. The bottle method is also sometimes subject to a sad catastrophe; if so much of the vapour has evaporated that it is not sufficiently potent to kill insects quickly, we are told that they bite off the antennæ and limbs of each other, or crawl about and besmear themselves with the matter that oozes from their wounds.

The use of grooved boards is recommended; the groove to have at the bottom "some holes made perpendicularly, and filled with cotton-wool;" the pins that are pierced through the bodies of the insects are to be stuck into these holes; the legs of the insects are to be *arranged in the grooves* as best they can be; the wings then stretched on the surface of the boards, and secured in position by pieces of paper pinned at each end; I can imagine the difficulty that must very frequently occur in this part of the process. Little more than an expansion of the wings is accomplished so far; when the wings are set, so as not to droop or fall backwards, the insect is to be removed from the setting board and the legs turned out by means of strong needles. If the wings are set, I venture to affirm that no proper arrangement of the legs can be accomplished; the legs must be as immovable as the wings.

I will, as briefly as I can, describe my own method of capturing and setting *Hymenoptera*, and leave it for Hymenopterists to try both methods, and make known their opinions which is the better. I capture my insects with a bag-net (when I consider a net necessary, because I really capture three-fourths with my fingers) made of the very finest white net that is manufactured, 22 meshes to the inch; this is only to be procured at a few of the best shops in London. When collecting, I carry a good supply of the best block pill boxes of different sizes, packed in a flat tin case that fits a satchel; this prevents the boxes being crushed in travelling to my hunting-ground; on arriving there, I transfer the boxes to the righthand pocket of my coat; when I capture an insect in my net, I select a proper sized box, take off the lid, and secure the insect in it against the side of the net; then, with a little manipulation, I put on the lid. The insect is now quite uninjured, with not a hair on its body ruffled. Each capture I thus secure in a separate box; these boxes I put into the lefthand pocket of my coat; and when I have filled a number, or have taken some great rarity, I put them back into the tin case; if a rarity, I frequently put the box in which I first secured it into one a size larger. Before starting on an excursion, I examine all my boxes, to be sure that the lids fit closely; if they do not, a strip of paper pasted round the rims makes them secure. On arriving home, I proceed to kill the insects; I take first the largest boxes used and raise the lids on one side, so as to leave a very narrow opening to admit the fumes of sulphur; I then pile the boxes one upon another in a pyramidal heap, and over the pile I place a bell-shaped glass, usually six inches in diameter, but the size will vary according to the number of boxes. I then take a little powdered sulphur on the end of a thin piece of flat wood (a match in fact), light the sulphur, and place it beneath the bell-glass; this process will sometimes require repeating once or twice, until the sulphur will no longer burn beneath the glass; it is then sufficiently charged. In this condition I leave it for about half-an-hour; I then empty the contents of the pile of boxes into two or three larger ones, recharge the bell-glass, under which I place the boxes of insects, and leave them until the following morning; the insects will then be in a proper condition for setting. Every insect will be found to be in the most perfect condition; pubescent ones, such as humble-bees, have not a hair disturbed, and they can be pinned without a chance of any liquid oozing out of the thorax and matting the pubescence.*

My method of setting and drying specimens is as follows:—For the latter process I use a drying-cage with door and back covered with net (perforated zinc would answer as well, if not better); the cage has several setting-boards resting upon slips of wood, and corked on one side, the cork being half-an-inch thick, thus allowing the insects to be pinned at a proper height.

The setting process is very easy and simple: having run a pin through the thorax, slightly before the middle of its disc, I mount it on to the setting board, running the pin into the cork until the under-side of the thorax very nearly touches the cork; the next thing to be done is to arrange the legs in a natural position by

* Sir Sydney Smith Saunders has communicated the following to me, which is, I think, an improvement on my own method of piling up the boxes for the sulphuring process:—"In using the bell-glass, I always pack the pill boxes within by reversing the glass, retaining them there by two slips of mill-board placed cross-wise, thereby keeping them remote from the lighted sulphur, whose fumes ascending until the glass is filled therewith, never necessitate a second application; but all must depend upon enabling the sulphur to burn freely at first. These fumes penetrate without partially opening the lid, as a sniff into any such boxes will readily manifest."—F. S.

the aid of fine pliers and setting-needles, securing the limbs in position, when necessary, with pins; on each side of the specimen I place a table for expanding the wings upon; this is simply a strip of good stout Bristol-board, that is, stout card; these tables must be of various sizes, and used according to the size of the wings of the insect; having fixed the tables firmly, I place the wings upon them with a setting-needle, and having, by a little manipulation, if necessary, hooked the wings together, push them forwards into the required position, holding them there with a needle, until, with a brace made of a strip of card shorter than the table, and pierced through at one end with a pin, the wings are secured in their proper position; the last process is to arrange the antennæ: this can sometimes be done by placing them on the end of the table on which the wings are spread; but, in the majority of cases, it must be done with pins.

The time necessary for insects to remain on the setting-boards depends upon a variety of circumstances; I am here alluding only to insects recently caught; in the height of summer, if dry and hot, a fortnight may do for small or slender insects, but I seldom remove any so soon; *Bombi* should, even in hot dry weather, remain at least a month, and at other times must be left five or six weeks, or the wings will be apt, in damp weather, to fall out of position.

This method avoids even the possibility of any of the dire effects to which insects are liable when treated after Dr. Krichbaumer's method, as he candidly admits; every specimen will now be in the most life-like position, and can be thoroughly examined in every part of its structure: nothing more can possibly be desired, that I can imagine, and yet Dr. Krichbaumer states, in his paper, that my method leaves "much imperfection"!—FREDK. SMITH, British Museum: *July, 1875.*

Abnormal absence of an ocellus in a Trichopterous insect.—This morning, when engaged in making drawings, under the microscope, from a Trichopterous insect taken at the Hospice St. Bernard, and which I believe to be a ♂ of the little-known *Acrophylax zerberus*, Brauer, I noticed that the left lateral ocellus was totally absent, although the right lateral and inter-antennal ocelli were quite normal, as was all the rest of the insect. I do not remember to have seen a parallel instance of deformity in insects anywhere recorded. Not only is the ocellus wanting, but the lateral cavity in which it should be placed is also nearly obliterated.—R. MOLACHLAN, Lewisham: *4th June, 1875.*

An addition to the known species of British Trichoptera (Stenophylax rotundipennis, Brauer).—Being at present occupied with the genus *Stenophylax* in connection with my 'Revision and Synopsis of European Trichoptera,' the materials in my collection, both British and continental, are naturally undergoing a close examination. One result is, that I find, carelessly mixed with *S. stellatus* (or rather with the form I have hitherto considered as *radiatus*), a pair (♂ ♀) of *S. rotundipennis*, Brauer, taken by myself near Scarborough in the second half of August, 1866. It may be separated from *stellatus* by its more rounded anterior-wings in both sexes. The last (8th) dorsal segment of the ♂ has two large rounded roughened black spaces, and the superior appendages are much broader and shorter. In the ♀ the last (9th) dorsal segment has an elongately triangular median prolongation, and thus is quite different to the formation seen in *stellatus*. On the continent it occurs in Austria and Bavaria, and I believe in other parts of Germany, and in Holland. Continental examples are paler (more yellowish) than the British pair, which latter resemble *stellatus* in coloration. *Id.*: *17th July, 1875.*

On Aplecta occulta, with descriptions of the larva and pupa.—For a complete set of figures of the larva, and the opportunity of studying the history of this species from the egg, I have been indebted to many kind friends, to whom I offer my grateful thanks, beginning with Dr. F. Buchanan White, who, on October 6th, 1868, sent me four young larvæ swept from heather at Achilty, Ross-shire, which, though put on a growing plant, died in the following February. Next, I received on May 1st, 1869, from Mrs. Hutchinson, a full-grown larva brought safely through the perils of hibernation, but which unfortunately died soon after while in the process of changing to pupa. In the same year, on the 18th of August, Mr. Longstaff, then staying at Cluny Hill in Morayshire, forwarded me part of a batch of eggs laid altogether in a heap by a female moth he had imprisoned for the purpose: the eggs were laid two and even three deep in parts of the heap; they hatched on the 27th and 28th of the month, and the larvæ were reared, some to full-growth, by the end of October, pupating in November, and others again at the end of January, 1870: the remainder of the brood continued to look well until the end of February, when a death or two occurred, and through March they died off rapidly, the last dying during the first week of April, when about one-third grown: a fatality also attended the pupæ, as no imago resulted from them.

The attainment of the final metamorphosis, completing the history of *occulta*, I owe to the kindness of Mr. J. B. Blackburn, who, on his return from Rannoch, presented me, on August 29th, 1874, with twenty young larvæ, then between two and three weeks old, which he had reared from eggs laid by a very black female captured there. Some of these soon outstripped their companions in growth, the earliest changing to a pupa on September 22nd, and others at intervals up to December 4th; and from some of these four moths were bred on October 13th, November 23rd, December 7th and 22nd, respectively, four pupæ still remaining.

Of the larvæ that continued to hibernate quite small up to the middle of March, 1875, I have been unable to save any; for, after moulting twice they seemed too weak to feed, and died mere empty skins, the last on the 6th of April about three-fourths grown.

The food on which Mrs. Hutchinson reared her larva was heather, bramble, sallow, and *Rumex crispus*; and to those reared from eggs I at first gave *Polygonum aviculare*, though their first meal was on the egg-shells, which they totally devoured; afterwards they had, besides the *Polygonum*, sallow and heather, birch and bramble, *Vinea major* and *Rumex pulcher*, and the last larvæ from Mr. Blackburn were fed on *Polygonum*, then on birch and sallow, with bilberry, afterwards dock and bramble, finally on dock, sallow buds and catkins.

The egg of *occulta* is globular in shape, a little depressed on the summit, and rather flattened beneath, the shell ribbed and finely reticulated, of a pale straw colour when first laid, afterwards becoming a pinkish-drab, and at last a dark lead colour. The newly-hatched larva is of a pellucid whitish-green, with minute black dots; on the third day becoming greener on the back, yellow on the sides, and head pale brown; after moulting twice it is yellowish-grey on the back and belly, dark greyish-brown on the sides, the dorsal and sub-dorsal lines dirty whitish, the latter edged above with black near the end of each segment to half-way along the next; the pale yellowish-white sub-spiracular stripe, so characteristic of this larva, now first appears with a black line above it. On becoming five-eighths of an inch long, it

is so dark as to appear almost black, though in reality the sides are darker than the back, especially towards the spiracles, where the blackest part being in contrast with the pale yellowish-white stripe below, makes it appear very brilliant; the black sub-dorsal streaks have now become thickened into wedge-shapes, broadest at the twelfth segment, where their bases are only separated by the thin and much interrupted yellowish-grey dorsal line: at this stage, in their captivity, it was that the precocious individuals began rapidly to increase in size, and attain full-growth in autumn, some of them keeping almost black to the last, others showing a mouse-coloured ground tint, more or less between the black markings; in these lighter examples the black marks were greatly reduced, in two instances to the merest rudiments.

The full-grown larva measures nearly two inches in length, stout in proportion, cylindrical in figure, though tapering a little at the thoracic segments to the head, which is the smallest segment; the thirteenth, sloping down from the back, tapers a little towards the end which is rounded off; the general appearance is plump and full, though the segmental divisions are very well defined, and the two usual transverse wrinkles towards the end of each segment can, in their plumpest state, be generally seen.

As regards colour, the head is usually brownish-grey, streaked on the front margin of each lobe, and reticulated at the sides, and freckled above the mouth, with blackish or with dark grey; the ground colour of the body varies in individuals from a light mouse colour to the deepest greyish-brown; on the second segment is a semi-circular smooth, but dull, plate of rich reddish-brown edged with black in front, through which runs the beginning of the usual lines, which are also continued faintly through the similar brown-coloured anal flap; the dorsal fine line is in most cases pale yellow, sometimes, at the very last stage, seen quite uninterrupted, but often much obscured; the yellow sub-dorsal line, a trifle thicker, runs its course in a festooned manner, when visible, forming a series of curves, the end of each curve bearing the hinder tubercular yellow dot; the dots, in threes on either side of the back of each segment, are always visible, and sometimes dingy ochreous-yellow, but the sub-dorsal line is sometimes absent; within the sub-dorsal line on the back of each segment, in front, is a more or less broad, black, velvety, blunt wedge-shaped mark, and the ground colour between these marks often so thickly covered with blackish coarse freckles as to give a blackish appearance to the whole area of the back; on the side, as far as the spiracles, the ground colour is often quite as much obscured with black freckles, while in some examples this part is freckled equally with yellow and black; but it is always bounded below by a velvety-black fusiform or triangular mark, bearing just within its lower edge the black spiracle, which, though not readily seen, may often be observed to be delicately margined with grey; immediately beneath comes the broad stripe of conspicuously bright yellowish-white, narrower on the second segment, and widening gradually to the fifth; suffused in the middle of each with a tinge of orange or of pink, and having a chain-like series of blackish and grey freckles running through its middle: the belly and legs of the ground colour are generally much paler than the back, but freckled with black at the sides, more sparingly towards the middle.

Among the larvæ sent me by Mr. Blackburn, some beautiful varieties were developed. Directly after their last moult they seemed to be quite black and velvety, but with a brilliant sub-spiracular whitish stripe, as the skin became more expanded by their increasing growth, the ground colour began to appear by degrees on the back and sides, in the interstices of the black freckles, of a cool grey tinged with a *rosy hue*, and banded across the front of the segments with a suffusion of blackish-

brown. Those that hibernated and moulted in the spring, and attained to half and three parts growth, were differently coloured from any of the others, for, although the details of markings were similar, the ground colours were rich, warm, bronzy-browns.

The pupa of *occulta* is nearly one inch in length, stout in proportion, of the usual *Noctua* form, the tail ending in two small points a little divergent; the surface roughened by minute pits and striations, except at the divisions of the abdominal rings; in the newly-changed pupa these were flesh colour, but after a few days became dark red, and soon after turned like the colour of the rest of the surface, a blackish-purple; through these parts the wings and antennæ cases still have the purple rather redder than the rest; the spiracles blackish.—WILLIAM BUCKLER, Emsworth: *June 15th, 1875.*

Is Larentia cæsiata double-brooded?—In reply to the Rev. J. Hellin's query in this month's E. M. M., page 7, I very much doubt if *Larentia cæsiata* be ever double-brooded in this country. The species abounds on all the rocky parts of our moors, and the imago is in beautiful condition in June; but although the species is very plentiful throughout July, the specimens seem to be nearly always battered and worn. We sweep the larva from ling in May, but I think I have never seen it later, certainly not in July, when the second brood would be feeding; nor have I ever seen an imago in August, unless it be a poor specimen at the beginning of the month.—GEO. T. POBRITT, Huddersfield: *June 7th, 1875.*

Larentia cæsiata and ruficinctata.—The Rev. J. Hellins wishes a decisive opinion upon the so-called single or double-broodedness of the above moths. From Mr. Hellins' own observation, there is no doubt about *L. ruficinctata* having two broods at Exeter. In Scotland, the favourite home of *L. ruficinctata* is on the rocky hills where *Saxifraga hypnoides* is plentiful, and here I should certainly say both species are single-brooded, *L. cæsiata* appearing two or three weeks before the other.—T. CHAPMAN, Glasgow: *June 10th, 1875.*

Re-occurrence of Halonota ravulana.—It is with pleasure I report the re-occurrence of *Halonota ravulana*. After some years' search in its old locality, Mr. E. Meek took a single specimen this year, and immediately informed me of its capture. On a later date he kindly presented me with a specimen he took in my presence, and I subsequently obtained one myself. The insect is undoubtedly scarce, as many excursions have failed to produce another specimen to me. Meek informs me he has taken three in all, a poor return for the time and trouble expended in searching for it.—SYDNEY WEBB, Redstone, Redhill: *8th July, 1875.*

Dicrorampha tanacetii.—I have at last taken this species, and most oddly, within a quarter of a mile of my own house, in a kitchen-garden. The patch of tansy is only a few feet in extent, but it has been there upwards of thirty years. I have looked for the insect for nearly that length of time, and never had any except some half-dozen specimens which were sent me by my late lamented friend Mr. Dorville; and I feared, now that I had lost my friend, I had lost all chance of again seeing *tanacetii*.

It is a very distinct species when one comes to know it and see it alive. My specimens correspond admirably with Mr. Barrett's description of the rich yellow scales; besides which, the size makes it strikingly different from *D. herbosana*. The small females almost look like some specimens of *D. acuminatana* which I take.—J. B. HODGKINSON, 15, Spring Bank, Preston: *June 23rd, 1875.*

Reviews.

THE LEPIDOPTERISTS' CALENDAR, giving the time when the British *Lepidoptera* appear in the egg, larval, and imago states; with the food-plant and habitat. By JOSEPH MERRIN. Second Edition, enlarged and corrected to the present time; small 8vo, pp. 250. Gloucester: Herbert Marsden, 1875.

We think that this little work will be found very useful by beginners in the study of British *Lepidoptera*. Its compilation must have cost much time and trouble, and on the whole is satisfactorily done, and it is neatly printed and got up. It brings before the young collector, at a glance, those species which he may expect to meet with, in their various stages, in any particular month, and will act as a good incentive. Of course, allowance must always be made for difference of latitude and altitude, and also for the forwardness or backwardness of the seasons in different years. At the end, is a list of plants referred to, with their English names, and a systematic list of our *Lepidoptera*, with indications of the months in which they appear as larvæ or imagos.

NORTH STAFFORDSHIRE NATURALISTS' FIELD CLUB; Annual Addresses, papers, &c.; 8vo, pp. 266. Hanley, 1875.

It does infinite credit to the Naturalists of North Staffordshire that, after an existence of only ten years, their Field Club can produce such a handsome volume as that before us, with papers of real interest, several of them by authors well known beyond the limits of their county. The majority of the papers are geological, with an admixture of archæology, which, rightly or wrongly, always seems to be inseparable from the Natural History work of Field Clubs. Entomology is not so well represented as it should be, and is limited to a list of the *Macro-Lepidoptera* of the district, compiled by T. W. Daltry, M.A., F.L.S. The term "*Macro-Lepidoptera*" is made to include the *Crambites*, and we find that, up to this point, 379 of the 983 British species have been taken in N. Staffordshire, including some very local insects.

Obituary.

Henry Doubleday. In the first decade (1809 and 1810) of the present century were born, at Epping in Essex, two brothers—Henry and Edward Doubleday—who were destined, after somewhat different manners, to have their names indissolubly connected with the science of Entomology in this country. The brilliant career of the younger (Edward) was prematurely cut short in 1849. The elder (Henry) passed from among us on the 29th of June last, after a short period of great suffering, and was buried at his native place on the 4th July. For many years Mr. Doubleday had been more or less a valetudinarian, and it was hoped by his friends that what proved to be his fatal illness might be only a more than usually severe, but not serious, attack,—a hope in which they were unhappily mistaken.

We have said that the entomological reputation of the brothers Doubleday was acquired in different manners. Edward, when scarcely more than 21 years old, shewed that the bent of his mind tended more towards the philosophical branch of the subject, and he early expanded his ideas by lengthened foreign travel. Henry remained at Epping, and at that time there was perhaps scarcely any spot in these islands more favourable for the development of a naturalist of the Gilbert White class, which he proved himself to be;—a careful, conscientious observer rather than a scien-

tifle zoologist. As a British Lepidopterist, the name of Henry Doubleday has become a household word. What was probably his first printed communication appeared in the 'Entomologist' in 1841, detailing his wonderful success in capturing *Noctuæ* at the blossoms of willows, at that time a novel procedure. Very soon afterwards, in 1842, he introduced the now familiar plan of 'sugaring,' the first captures by that means recorded being two specimens of *Polia occulta*, which appears both in the 'Entomologist,' p. 407, and in the 'Zoologist,' vol. i, p. 30; a list of captures at sugar in the autumn of 1842 appearing in the same volume of the 'Zoologist,' p. 201. One consequence was that our cabinets soon became full of species of *Noctuæ* that had hitherto been reputed rarities. In 1843 occurred what may be considered the great event of his life, one that had an especial influence upon Lepidopterology in this country. He then visited Paris, and it was probably the only time he ever quitted England. He found that the nomenclature in use here and on the continent of Europe was utterly different, and, after calling attention to the subject in a 'Note on the names of British moths,' in the 'Zoologist,' vol. i, p. 332, he at once set to work to annihilate native traditions and prejudices by publishing a catalogue of British *Lepidoptera* (then not including the *Tineina*) in which attempts were made to make it possible that English Lepidopterists might be understood by their brethren on the continent. It is needless to say that 'Doubleday's List' has since gone through several editions, and, though scarcely more than a label-list, has been of the greatest possible service.

As a writer, Henry Doubleday was not prolific. Outside his list he never published any lengthy work, though his communications to entomological periodicals were very numerous, principally on points of habit. But, nevertheless, his correspondence with Lepidopterists, both at home and on the continent, was very extensive. His liberality in supplying both specimens and information was unbounded; and no better tribute to his memory can exist than the few words used by Guenée, in the introduction to his 'Uranides et Phalénites,' who, in thanking those entomologists who had aided him, says:—"Lastly, I cannot resist the pleasure of closing this list "by a name that I know not how to repeat too often, that of my excellent and useful "friend Henry Doubleday of Epping, who seems to have devoted to my work, and "even to the enriching of my collection, a more active zeal than that used by many "others in their own interests."

Although we are principally concerned with Doubleday as an entomologist, still it would not be just to pass unnoticed his attainments as a general naturalist, and especially as an ornithologist. There are few who have so thorough a knowledge of British Birds as that possessed by him, and his name constantly occurs in the works of Yarrell and others in connection with habits, migration, nesting, &c.

His private life was marked by extreme simplicity, in an even too great a degree for material interests. For nearly ten years he had been entirely out of business, living, as he always had done, almost in seclusion, varied by the visit to Epping of some brother Entomologist attracted by the fame of his wonderful collection, and a desire to make the personal acquaintance of a man of whom so much was said, and who was so universally known by correspondence. His chief amusement was gardening, and especially strawberry culture, in which he excelled; and we shrewdly suspect that some of his numerous friends contrived to fix the period of their visits in the strawberry season.

In concluding this notice we cannot resist calling attention to events that no one could possibly have felt more keenly than Henry Doubleday. When he was born, Epping was surrounded by one of the finest old forests in England, the solitudes of which were scarcely disturbed by anything save the huntsman's horn, for deer were then plentiful in it. (Who knows but that the accident of birth in such a locality may not have been the means of developing the taste for Natural History in Doubleday and his brother?) He lived to hear in it the screech of the locomotive, and to see its finest portions ruthlessly destroyed; and we can easily imagine what a satisfaction it must have been to him to know, before his death, that, after a severe legal struggle, the little that remains of it will hereafter be unmolested.

Mr. Doubleday died unmarried. What will become of his collections we do not yet know. In addition to the purely British collection of *Lepidoptera* which is so far-famed, there exists a very extensive and valuable continental collection.

ENTOMOLOGICAL SOCIETY OF LONDON: 5th July, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

W. Borrer, Jun., Esq., of Cowfold, Sussex, and A. F. Sealy, Esq., of Cochin, India, were elected Members, and W. D. Gooch, Esq., of Natal, a Subscriber.

The President informed the meeting of the decease of Mr. H. Doubleday, one of the original Members of the Society, and Mr. Stainton made a few remarks on his entomological labours.

Mr. Dunning said that the *Ornithoptera* from Cochin, bred by Mr. Sealy, and exhibited at recent meetings, had been identified as *O. Minos*.

Mr. Bond exhibited two large Curculios from New Fribourg, Brazil, attached to the same twig, and both attacked by a fungus. Mr. Janson said they pertained to the genus *Hylopus*, and were well known to be subject to such attacks.

The President exhibited a lock, taken from a gate at Twickenham, entirely filled with the nests of a species of *Osmia*, which Mr. Smith said was most probably *O. bicornis*. He also exhibited an example of the minute *Hylechthrus rubi*, one of the *Stylopidae* parasitic upon *Prosopis rubicola* in Epirus, recently obtained from imported briars, and remarked upon a method of expanding the wings of *Stylopidae*. In repose, these wings are rolled up in an elongate form, but he found that by pressing them gently forward from below, they suddenly become erect, and are then easily retained an expanded condition. Further, he exhibited ♂ ♀ of *Spilomena troglodytes* reared from bramble-stems found at Shere in Surrey, and a series of *Halictus nitidiusculus* stylotized; and recommended entomologists, going to the south-coast in August, to search for stylotized *Halicti*. Finally, he remarked on the parasites of *Osmia* and *Anthidium*; and exhibited two species of the Coleopterous genus *Zonitis* (*Z. mutica* and *Z. bifasciata*) reared from the cells of *Osmia tridentata*, and a third (*Z. præusta*) from those of *Anthidium contractum*, which latter had also produced two species of *Chalcididae* (*Leucospis dorsigera* and *Eurytoma rubicola*). He enumerated eleven insects as attacking the same *Osmia* in various stages, of which he had himself reared six species, including the two *Zonites* aforesaid; the other four being *Cryptus bimaculatus*, *Melitobia Audouini*, *Hallicella osmiicida*, and *Chrysis indigotea*; Dufour and Perris having also recorded *Stelis minuta*, and two species of *Diptera*, *Senometopia spinipennis* and *Conops flavipes*; two other *Crypti* (*C. confusor* and *C. signatorius*) being cited by Dr. Giraud. The *Zonitis* devoured the egg and pollen-paste whereon the *Stelis* also subsisted; the *Chrysis*, *Crypti*, and *Senometopia* fed upon the soft larvæ externally; *Hallicella* was reared within the more solid adult larvæ, whose integument, dessicated and black (as in specimens exhibited), served for the hibernation

of the parasite; the *Melitobia* destroyed the nymph in its soft state by external attack; and the *Conops* deposited its egg in the body of the bee itself after maturity. Specimens of this *Osmia* alive, and of the briars from which they were produced, were also exhibited.

Mr. Champion exhibited a series of recently-captured individuals of *Chrysomela cerealis* from Snowdon, its only British locality. Mr. McLachlan stated that he had recently seen this species in the Department of the Saône et Loire in France in great numbers, each ear of wheat having several of the beetles upon it, and remarked on the singular nature of its sole habitat in Britain.

Mr. Grut exhibited nests of a trap-door spider, containing living inmates, sent from Port Elizabeth, South Africa, by Mr. Bidwell. These nests were not (as is usual) in the earth, but in cavities in the bark of trees, and the trap appeared to be formed of a portion of the bark, thus rendering it almost impossible to detect the nests when in a closed condition.

Mr. Riley, State Entomologist of Missouri, exhibited sundry of the insect pests that do so much damage in his State, including the Rocky Mountain Locust (*Caloptenus spretus*), and entered at some length into the habits of the insect, and the vast amount of destitution caused by it, stating that in a short period it devoured almost every living plant, leaving nothing but the leaves of the forest trees, and converting a fruitful country into an absolute desert. From a knowledge of the habits of the insect, and believing in its inability to exist in a moist climate, he had predicted that its ravages would not extend beyond a certain line, and he had seen these predictions fulfilled almost to the letter. Having noticed that hogs and other animals grew excessively fat from devouring the Locusts, and considering that the use of them as food for man would tend to relieve some of the distress occasioned in the devastated districts, he had, shortly before leaving St. Louis, organized a banquet at which the Locusts, prepared in various ways (especially in the form of soup) were served up, and they were pronounced to be excellent. He distributed a number of baked Locusts among the Members present. [These were tasted, but with no general expression of satisfaction: they were pronounced excessively greasy, and probably the best comparison was made by a Member who stated that they resembled burnt mutton fat; the chitinous external integument was also disagreeable]. Mr. Riley further stated that he was desirous of taking a supply of cocoons of *Microgaster glomeratus* to America, to lessen the ravages of the larvæ of *Pieris rapæ* on that continent.

The following papers were read:—

Prof. Westwood's Descriptions of new Heteromorous *Coleoptera* belonging to the family *Blaptidæ*.

Mr. Butler on a new species of *Myriopod* from Mongolia.

Mr. C. O. Waterhouse on new *Coleoptera* from Port Bowen, Australia.

Mr. Hewitson forwarded a note respecting a paper by Mr. Butler in the first part of the Transactions for 1875, in which it was suggested respecting *Netrocoryne beata* and *N. Denitza* that Hewitson's figures of these species [Exot. But. Vol. v.] were wrongly numbered. Mr. Hewitson said they were numbered quite correctly, and that he believed they would be found to be the sexes of *N. beata*.

The President stated that this was the last meeting that would be held at Burlington House, and that due notice would be given when the arrangements at the Society's new rooms at 11, Chandos Street, Cavendish Square, were completed, the Library having been already removed to that place.

Mr. Dunning proposed, and Mr. McLachlan seconded, a cordial vote of thanks to the Linnean Society for the permission to hold the meetings at their rooms, so long enjoyed by the Entomological Society. This was carried by acclamation.

DESCRIPTIONS OF HITHERTO UNCHARACTERIZED SPECIES OF
PHYTOPHAGA.

BY JOSEPH S. BALY, F.L.S.

Fam. HISPIDÆ.

Genus *CHARISPA*.

Ædiopalpa, olim, Cat. Hispidæ, p. 16.

CHARISPA AMICULA.

Elongata, modice convexa, cæruleo-nigra, nitida, thorace rubro, elytris fere æquilato, utrinque intrâ latius longitudinaliter excavato; elytris punctato-striatis, metallico-cæruleis. Long. 3 lin.

Hab.: Para.

Front concave; antennæ equal in length to the head and thorax, third joint more than twice as long as the second, fourth and fifth equal, each shorter than the third. Thorax nearly twice as broad as long, sides straight and parallel on their basal half, rounded and converging from the middle to the apex, anterior angles not produced, sub-acute, hinder angles slightly produced, acute; upper surface deflexed on either side in front, remotely punctured, anterior and lateral borders narrowly edged with piceous, basal lobe also piceous; on each side near the lateral margin is a broad longitudinal depression, the surface of which is coarsely variolose-punctate. Scutellum not broader than long, pentagonal, its apical angle obtuse. Elytra slightly broader than the thorax, sides parallel, apex regularly rounded, apical border distinctly serrate; upper surface moderately convex, minutely granulose-reticulate, regularly punctate-striate, humeral callus thickened.

The much more elongate form will distinguish this insect from *C. laticollis*, the only species with which it can be confounded.

CHARISPA ELONGATA.

Elongata, angustata, nigro-cærulea, nitida, thorace rubro, apice plagâ trigonatâ nigrâ, elytris abdomineque metallico-cæruleis. Long. 3½ lin.

Hab.: Rio Grande; in my own collection.

Front concave; antennæ longer than the head and thorax, third joint equal in length to the first and second, fourth and fifth, each one-third shorter than the third, equal. Thorax broader than long, sides straight and nearly parallel, very slightly converging from the base to beyond the middle, thence rounded and converging to the apex, anterior angles obtuse, hinder acute; disc not excavated on the sides, the latter distinctly margined; surface remotely punctured, apex with a large triangular black patch which extends entirely across the apical border, and backwards for one-fourth the length of the disc; basal lobe piceous, separated from the disc by a transverse groove. Scutellum scarcely longer than broad, sub-pentagonal, impressed near the apex by a transverse groove. Elytra broader than the thorax, parallel, narrowly rounded and distinctly serrate at the apex, the extreme apex obtuse; upper surface minutely granulose, regularly punctate-striate.

The narrow elongate form will at once separate this species from its congeners.

CHARISPA CÆRULESCENS.

Sub-elongata, cæruleo-nigra, nitida, suprà (antennis exceptis) metallico-cæruleus, thorace transverso, utrinque intra marginem longitudinaliter excavato, ad latera et ad basin foveolato-punctato, disco fere impunctato; elytris regulariter punctato-striatis, apice obsolete denticulatis.

Long. 3 lin.

Hab.: Bahia.

Front concave; antennæ one-third the length of the body, third joint nearly equal in length to the first and second, fourth and fifth nearly equal, each one-third shorter than the third. Thorax nearly one-third broader than long, sides straight and parallel at the base, slightly sinuate at the middle, thence rounded and converging to the apex, anterior angles obtuse, hinder acute; surface within the sutural border broadly excavated from the base to the middle, excavated portion and the basal half of the disc impressed with large round variolose punctures, rest of the surface nearly free from punctures; basal lobe separated from the disc by a transverse groove. Scutellum broader than long, pentagonal, all its angles obtuse, surface smooth, impressed with two transverse grooves. Elytra broader than the thorax, sides parallel, apex regularly rounded, apical border obsoletely serrulate, above minutely granulose-reticulate, their colour deeper and brighter than the thorax, regularly punctate-striate.

Genus CEPHALOLEIA.

CEPHALOLEIA EMARGINATA.

Elongata, nigra, nitida, suprà cærulea, antennis robustis, nigris; thorace sub-remote varioloso-punctato, margine antico utrinque ad latus emarginato; elytris parallelis, apice minute serratis, suprà modice convexis, utriusque infra basin excavatis, regulariter punctato-striatis.

Long. 2—2½ lin.

Hab.: Para, Santarem.

Front concave, space between the antennæ occupied by a longitudinal ridge; antennæ equal in length to the head and thorax, robust, three lower joints nearly equal in length. Thorax rather broader than long, sides straight and nearly parallel, very slightly converging from base to apex, hind angles acute; anterior margin distinctly notched on either side close to the anterior angle, the latter incurved, obtuse; placed in the middle of each notch is a small tubercle, only visible under a deep lens; upper surface shining, impressed with large, round, variolose punctures, remote on the disc, rather more crowded on the sides. Scutellum transverse, sub-pentagonal, lateral angles obtuse, the apical one slightly produced, acute. Elytra broader than the thorax, parallel, rounded, and converging near the apex, the latter obtuse, apical border minutely serrate; upper surface moderately convex, smooth, impressed on the basal half with fine, irregular, transverse strigæ; regularly but not coarsely punctate-striate, interspaces not thickened. Apical segment of abdomen broadly truncate-emarginate, the emargination occupying nearly the whole width of the apex.

CEPHALOLEIA CÆRULEATA.

Sub-elongata, subtus nigra, suprà metallico-cærulea, antennis nigris, thorace transverso, lateribus rectis, parallelis, apice rotundatis, angulo antico acuto, dorso foveolato-punctato, disci medio fere impunctato; elytris thorace paullo latioribus, parallelis, regulariter punctato-striatis.

Long. $2\frac{3}{4}$ lin.

Hab.: New Friburg, Brazil. A single specimen in my collection, formerly in the possession of the late A. Deyrolle.

Head coarsely punctured, space between the eyes slightly raised, its surface flattened; antennæ half the length of the body, scarcely thickened towards the apex, basal joint slightly thickened, third nearly one-half longer than the second. Thorax one-third broader than long, sides straight and parallel, slightly sinuate just in front of the hinder angle, suddenly rounded and converging at the apex, anterior and posterior angles acute, the latter slightly produced laterally; anterior margin armed on either side, a short distance within the anterior angle, with a short obtuse tooth; upper surface smooth and shining, closely covered on the sides with large round fovæ, disc nearly impunctate. Scutellum pentagonal, not broader than long, its apical angle very acute; surface smooth, impressed towards the apex with two transverse fovæ. Elytra broader than the thorax, the sides parallel, apex obtusely rounded; above moderately convex, somewhat flattened on the disc, transversely wrinkled at the base; on each elytron just within the humeral callus is an ill-defined oblong protuberance, the space between the latter and the suture indistinctly excavated; granulose-reticulate, strongly punctate-striate, interspaces thickened on the sides and apex. Apical segment of abdomen rounded, slightly sinuate on either side.

Genus *DEMOTISPA*.*DEMOTISPA ELEGANS.*

Late oblonga, depressa, rufa, nitida, antennis, basi exceptis, nigris; elytris metallico-cyaneis.

Long. 3 lin.

Hab.: Ecuador. Collected by Mr. Buckley.

Head smooth; antennæ half the length of the body, two basal joints rufopiceous. Thorax transverse, equal in breadth to the elytra, sides rather broadly margined, rounded and converging from the base, more quickly rounded at the apex, anterior and posterior angles obtuse; upper surface smooth, impunctate, indistinctly excavated transversely at the base and apex; basal margin narrowly edged with piceous. Scutellum rather broader than long, pentagonal, its apical angle obtuse. Elytra broadly oblong, sides slightly rounded, broadly margined, apical border finely serrate. Upper surface depressed, excavated on either side just below the basilar space, regularly punctate-striate.

(To be continued).

NOTES ON BRITISH *HOMOPTERA*, WITH DESCRIPTIONS OF ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

(concluded from page 29).

TYPHLOCYBIDÆ.

6. *TYPHLOCYBA AUROVITTATA*.

Anomia aurorivittata (Fieb.), *sec. Lethierry, in litt.*

Slender, dingy yellowish-white and golden. *Crown* yellow, obtusely produced. *Pronotum* quite one-half longer than the head, rounded in front, posterior margin sub-truncate, disc pale in the middle, on each side of which is a longitudinal, broad, yellow vitta, sides pale. *Scutellum* yellow. *Elytra* narrow, broadly dingy yellowish-white on the costa and claval suture, almost as far as the membrane, on the middle of the *corium* a golden-yellow vitta, widening as it proceeds, extends from the base almost to the membrane; *clavus* golden-yellow; *membrane* fuscous, the colour extending backwards a little beyond the base of the cells on to the *corium* as blotches, the largest of which is next and extends on to the apex of the *clavus*; nerves pale yellow. *Wings* transparent, the two upper nerves slightly fuscous. *Legs* pale yellow, *claws* of the *tarsi* black.

Under-side and *abdomen* black, the segments of the latter with whitish margins.

Length, fully $1\frac{1}{2}$ line.

Somewhat like *T. tenerrima*, but distinguished by the shorter and less-rounded head, by the two vittæ on the pronotum, by the yellow colour—notably of the vittæ of the elytra—being of a deeper hue, and by the fuscous membrane with pale nerves.

An example of this species has been identified by M. Lethierry as *Anomia aurorivittata* (Fieb.). It does not appear to have been described.

I beat three or four examples, on 4th November, 1866, from hedges composed of maple, hawthorn, hazel, &c., in a lane near Eltham, Kent.

9. *TYPHLOCYBA GRATIOSA*.

Typhlocyba gratiosa, Boh., Vet. Ak. Handl., 121, (1853); J. Sahlb., Not. Fenn., xii, 179, 8 (1871). *Typhl. suturalis*, Flor, Rhyn. Liv., ii, 634, (1861); Kirschb., Cicad., 186, 22 (1868).

Pale ochreous. *Crown* obtusely produced in front. *Pronotum* twice as broad as long, nearly twice the length of the crown, the base slightly emarginate. *Elytra*—*clavus* fuscous-brown, sometimes pale, infuscated; *corium* whitish-ochreous, hyaline, with yellowish nerves, apical cells wholly infuscated, with two or three more or less long, fuscous dashes extending backwards on to the *corium*. *Wings* hyaline, nerves yellowish. *Legs* pale yellow, *claws* of the *tarsi* fuscous.

Length, $1\frac{1}{2}$ line.

Found at the end of June on beech trees at Birch Wood, and in July on palings under beeches at Blackheath.

10. TYPHLOCYBA LACTEA.

Anomia lactea, Leth., Hém. Nord, 58 (1869); 2 edit. 74 (1874).

Milk-white, immaculate. *Head* short, much rounded in front. *Pronotum* twice as long as the head, posterior margin slightly emarginate. *Elytra* milk-white, sub-opaque throughout, anterior margin very narrowly reddish, nerves slightly yellowish. *Wings* white, diaphanous, iridescent. *Legs* yellowish.

Abdomen yellowish-white.

Length nearly $1\frac{1}{2}$ line.

Like *T. rosæ*, Lin., but distinguished by its purer white colour, which at once attracts attention, the somewhat shorter and broader elytra, &c.

Ten years ago I had in my garden a seedling cherry tree, and this species was found in all stages of growth on the under-side of the leaves during July and August. I intended to describe it under the name of *T. cerasi*, but M. Lethierry informs me that it is his *A. lactea*, described as above stated.

12. TYPHLOCYBA ALNETI.

Cicadula alneti, Dahlb., Vet. Ak. Handl., 181, (1851). *Typhl. alneti*, J. Sahlb., Not. Fenn., xii, 181, 10 (1871). *Typhlocyba coryli*, Toll., Stett. Ent. Zeit., xii, 70, 12, t. i, fig. 6 (1851); Flor, Rhyn. Liv., ii, 404, 15 (1861); Kirschb., Cicad., 184, 16 (1868).

Pale yellowish, very glossy. *Crown* lunate in front. *Pronotum* nearly twice the length of the crown. *Elytra* hyaline with paler nerves, the 1st apical cell small, the 4th obliquely truncate at the base and extending further back than the others. *Wings* hyaline with concolorous nerves, the 2nd transverse one very oblique, the 2nd longitudinal one much nearer to the 3rd than to the 1st. *Legs* pale yellow, *claws* of the tarsi slightly infuscated.

Abdomen above slightly infuscated.

Length $1\frac{1}{2}$ line.

Resembles *T. rosæ*, Lin., but differs in the proportions of the apical cells of the elytra, in the obliqueness of the 2nd transverse nerve, in the proximity of the 2nd to the 3rd longitudinal nerve of the wings, and in the form of the genitalia.

Not scarce on alder trees at Lewisham, in August.

14. TYPHLOCYBA ROSEA.

Typhlocyba rosea, Flor, Rhyn. Liv., ii, 403, 14 (1861); J. Sahlb., Not. Fenn., 183, 12 (1871). ? *Typhl. roseipennis*, Toll., Stett. Ent. Zeit., xii, 70 (1851).

Pale yellowish-white, with a roseate flush. *Head*, *pronotum* and *scutellum* with two continuous reddish vittæ extending through them, diverging as they proceed. *Head* short, sub-lunate. *Pronotum* twice as long as the head, posterior margin slightly emarginate. *Elytra*: apex broadly rounded; upper and lower margins, including the *clavus*, slightly infuscated, with a more or less rosy tinge; in the middle a transparent vitta extends from the base to the apex; the longitudinal nerves of the corium on the apical half, and the base of the apical cells rosy, otherwise the nerves are pale. *Wings* opaline. *Legs* pale yellow, apex of the *tibiæ* and joints of the *tarsi* infuscated. Length, $1\frac{1}{4}$ line.

The species, according to descriptions, varies in colour; in the ♂ the corium being sometimes wholly, and the *clavus* broadly, testaceous; in the ♀ the corium has usually a narrow roseate vitta on the inner side, but sometimes it is immaculate.

Typhlocyba roseipennis, Tollin, is possibly this species, but the neururation of the elytra and wings not being given, certainty cannot be insured.

I have one example, ♀, taken from a fir tree (*Pinus sylvestris*), at West Wickham Wood, April 19th, 1867; doubtless a hibernated individual.

Lee, S.E.: June 1st, 1875.

POSTSCRIPT.—*Eupteryx notatus*, Curt. (No. 2 ante), *Typhlocyba Wallengreni*, Stål. I have seen a few examples taken by Mr. B. Cooke "on Holyhead Island, 11th October last, jumping about among gorse, heath, grass, &c., a few hundred yards from the sea-side."

Eupteryx abrotani (No. 3 ante), previously found on *Artemisia abrotanum*, has recently been taken by Mr. Scott, in Hampshire on *Artemisia maritima*; and the occurrence of the species on two species of *Artemisia* having revived my original suspicion that it might be *Typhlocyba artemisiæ*, Kbm. (Cicad. 190, 31), I have again turned to the description; but the words "die Decken mit zerstreuten sehr erloschenen "schwärzlicher Puncten besprengt," still do not appear to be applicable to our species, in which the dark markings of the elytra are in the form of distinct dashes. *Typhl. adspersa*, H.-Schf. (F. G., 164, 12), which, according to the description and figure, has small fuscous dots on the elytra—"punctis parvis rotundis fuscis—," and, according to Kirschbaum, resembles *T. artemisiæ*, appears to me to be still less like *E. abrotani*; therefore, at present, I must hold the latter to be distinct. It is unknown to Dr. J. Sahlberg and M. Lethierry.

June 26th, 1875.

Since writing the foregoing, I have seen, in the collection of Dr. J. A. Power, four examples, all ♂, of a *Typhlocyba*, taken at Esher,

in the autumn of 1866, which is certainly *Cicada tiliæ*, Fallén. It has been rarely noticed by authors; I can only find it cited by Dr. J. Sahlberg (who gives it doubtfully—"verisimiliter"—as a synonym of *T. blandula*), and by M. Lethierry. It is all but identical in marking with *T. blandula*, but differs in having the tarsi of the third pair of legs wholly black, giving the insect a very remarkable character. Flor says (Rhyn., Livl., ii, 401) that in *T. blandula*, ♂, all the three joints of the hinder tarsi, except the base of the first, are often black. In Dr. Power's examples the first joint like the others is wholly black. Assuming for the present that it is a distinct species, the synonymy will be as follows:—

TYPHLOCYBA TILIÆ.

Cicada tiliæ, Geoff., Ins., i, 426, 24 (sec. Fall., l. c. infra); Fall., Hem. Succ., ii, 57, 55 (1826). *Typhlocyba blandula*, var., J. Sahlb., Not. Fenn., xii, 184, 13 (1871). *Zygina tiliæ*, Leth., Hém. Nord, 2 ed. 77 (1874).

15, Belgrave Terrace, Lee, S.E. :

4th August, 1875.

Capture of Mesovelia furcata, Muls.—It has fallen to the lot of Dr. Power to take one of the rarest, if not the rarest, species of *Hemiptera-Heteroptera* belonging to Britain, if not to Europe. The only specimens of *Mesovelia furcata* previously known to me were two, viz.: that described by MM. Mulsant and Rey in Opusc. Ent. in 1852, and that in the possession of Mr. E. Brown of Burton-on-Trent, captured several years ago near that town. The specimens, two in number, taken by Dr. Power are without the membrane, so that the inference is the season was a little too early. He has also taken a few specimens of the pupa, which at first sight I thought might be the imperfect form of the creature, but subsequently, through the Doctor's kindness, having been directed to the spot, I was fortunate to take it in its stages of larva, pupa, and imperfect imago. It is exceedingly active in the net, and what is more, it is difficult to see.—JOHN SCOTT, 37, Manor Park, Lee: August, 1875.

Notes on Mediterranean Hemiptera-Heteroptera.—While on the Mediterranean Station, on board H. M. S. "Swiftsure," I devoted most of my limited spare time to collecting insects, *Coleoptera* being my principal quest. I did not, however, neglect to secure all the *Hemiptera* which came in my way; and my somewhat unexpected return home having given me an opportunity of inspecting my captures (consigned to the care of my friend Mr. G. C. Champion), I have drawn up the following notes, which may possibly be of interest to Hemipterists. My very slight acquaintance with the order must be an apology for all deficiencies in this paper.

The insects were all determined by Mr. E. Saunders, to whom I beg to tender my sincere thanks.

Omitting a few species of universal distribution, my captures (made between July, 1874, and March, 1875) include:—*Brachypelta aterrima*, Forst., common in dry vegetable refuse, &c., at Malta: *Macroscytus brunneus*, Fab., Gibraltar, not rarely under stones: *Geotomus punctulatus* and *levicollis*, Costa, and a new species? commonly: *Cydnus fuscipes*, Muls. and Rey, and *Ochetostethus nanus*, H.-Schäff., abundantly, at Malta, by cutting tufts of herbage: *Odontoscelis dorsalis*, Fieb., Gibraltar, commonly, usually found crawling in dusty roads: *Ælia Burmeisteri*, Küst., Taormina (Sicily), Cagliari, and Port Mahon; occasionally by sweeping: *Æ. cognata*, Fieb., by sweeping, at Palermo: *Menaccarus*, n. sp.? Balearic Isles: *Sciocoris maculatus*, Fieb., *unbrinus*, Wolff., *macrocephalus*, Fieb., *angustipennis*, Muls. and Rey, and other spp., commonly, at roots of herbage, at Malta: *S. Helfer*i, Fieb., Port Mahon, by beating herbage: *Eurygaster niger*, Fab., Malta, rarely: *Odontotarsus graminicus*, Lin., Port Mahon and Corfu, and *O. caudatus*, Klug, Malta; both rarely under stones: *Rhaphidogaster griseus*, Fab., Port Mahon, not rarely under loose willow bark: *Carpocoris lunula*, Fab., Cagliari and Malta; *baccarum*, Lin., Gibraltar; and *verbasci*, De Geer, Port Mahon; all not rare by sweeping: *Peribalus vernalis*, Wolff, Malta: *Brachynema cinctum*, Fab., Cagliari and Port Mahon, abundant on *Suæda*: *Scutellera lineata*, Lin., Tangier and Gibraltar, by sweeping, and on flowers: *Holcostethus congener*, Fieb., Cagliari; *sphacelatus*, Fab., Gibraltar; and *jani*, Fab., Taormina; all by sweeping: *Nezara prasina*, Lin., Tangier, Cagliari, and Corfu, by sweeping, but rarely: *Eysarcoris misellus*, Stål, Port Mahon, by beating herbage: *Strachia picta*, H.-Schäff., Port Mahon, Cagliari, Gibraltar, &c.; abundant on Crucifers, and very variable: *S. ornata*, Lin., Malta and Gibraltar, by sweeping: *Glypheria aruginosa*, Cyrill, Malta, under stones: *Cryptodontus tuberculatus*, Rossi, one in a tuft of grass at Gibraltar: *Ancyrosoma albilineatum*, Fab., Tangier, Palermo, Taormina, Corfu, &c., by sweeping, and at roots of *Verbascum*: *Trigonosoma Desfontainesi*, Fab., once, by sweeping, at Cagliari: *Trigonosoma*, n. sp.? Patras: *Gonocerus insidiator*, Fab., Gibraltar, by sweeping: *Verlusia sinuata*, Fieb., Port Mahon, by beating herbage: *V. sulcicornis*, Fab., Malta, commonly on walls, &c.: *Centrocarenus spiniger*, Fab., Gibraltar, under stones: *Strobilotoma typhicornis*, Malta, and *Dasy-coris dentator*, Fab., Corfu, by cutting tufts of herbage: *Enoplops cornutus*, Hoff., Tunis, not rarely under stones, &c.: *Pseudophleus Waltli*, H.-Schäff., Gibraltar, and *P. auriculatus*, Fieb.? Malta and Cagliari; commonly under stones: *Stenocephalus neglectus*, H.-Schäff., Malta: *Camptopus lateralis*, Germ., Cagliari, by sweeping; a very fragile insect: *Phyllimorpha laciniata*, Vill., a few specimens of this extraordinary little creature (which, when feigning death, exactly imitates a small, withered, spiny seed-vessel of some plant) in a tuft of *Parietaria* at the foot of the Rock of Gibraltar: *Therapha hyoscyami*, Lin., Gibraltar, by sweeping *Ononis*: *Micrellytra fossularum*, Rossi, Gibraltar: *Coryzus truncatus*, Ramb., and *errans*, Fab., Taormina, Gibraltar, and Malta: *Brachycarenus tigrinus*, Schill., Tangier, by general sweeping: *Prionotylus Helfer*i, Fieb., Gibraltar and Tangier, under stones: *Pyrrhocoris apterus*, Lin., abundant (and generally gregarious) in every locality I have visited: *P. ægyptius*, Lin., with the preceding, but less numerous: *Plociomerus annulipes*, Bær., Tunis, under stones: *Lygæus militaris*, Fab., Malta and Gibraltar, common, usually flying in the sunshine: *L. saxatilis*, Scop., common on flowers, Rock of Gibraltar; and *L. equestris*, Lin., Patras, under stones: *Lygæosoma punctato-guttatum*, Fab., Malta

and Gibraltar, &c.; abundant on *Verbascum* and under stones: *L. reticulatum*, H.-Schäff., Malta, Gibraltar, Palermo, Corfu, &c., generally distributed, and common under stones, &c.: *Calyptonotus leucodermus*, Fieb., and *C. Rolandri*, Lin., Malta, on stone walls; and a pretty new species from the same island: *Emblethis arenarius*, Lin., Malta and Gibraltar, and *F. pilifrons*, Zett., Malta, not rarely at roots of herbage: *Gonionotus marginipunctatus*, Wolff, Tunis, under stones: *Dieuches pulcher*, H.-Schiff., *Rhyparochromus colon*, Put., and *niger*, Fieb., and *Calyptonotus phæniceus*, Rossi, all common, at Corfu, by cutting tufts of herbage in January: *Neurocladus brachyilens*, L. Duf., Gibraltar, among grass: *Beosus saturnius*, Rossi, Malta, and *B. quadratus*, Fab., Corfu, both commonly under stones: *Nysius graminicola*, Kolen., Gibraltar and Port Mahon, by sweeping: *Nysius senecionis*, Schill., common in a heap of cut weeds at Malta: *Hyalochilus cordiger*, Fieb., Gibraltar, by sweeping: *Piezoscelsis staphylinus*, Ramb., Gibraltar, under stones: *Ischnocoris hemipterus*, Sahlb., Corfu, in tufts of herbage, both developed and undeveloped: *Scolopostethus nervosus*, Fieb., Gibraltar, under stones; and n. sp., Malta: *Drymus*, n. sp., Tunis: *Oxycaenus lavateræ*, Fab., in compact clusters, numbering many thousands of individuals in each, on the branches of road-side poplar-trees at Cagliari; also one or two stray specimens at Tunis: *Ophthalmicus siculus*, Fieb., Corfu, and *albipennis*, Fab., Corfu and Gibraltar; common in tufts of herbage: *O. pygmæus*, one specimen, Gibraltar: *Lamprodema maurum*, Fab., Malta and Gibraltar, and *Plinthisus flavipes*, var., Fieb., Gibraltar and Corfu; both not rare under stones: *P. longicollis*, Fieb., Gibraltar: *P. bidentulus*? Corfu: *Microplax plagiatus*, Fieb., Gibraltar, abundant in sandy places at roots of herbage: *M. interruptus*, Fieb., and *Aoploscelis bivittata*, Cost., Corfu, in tufts of grass, &c.: *Macropterna convexa*, Fieb., Cagliari, by sweeping: *Campylostira ciliata*, Fieb., Patras: *Monanthia nassata*, Put., Malta, under stones: *M. geniculata* and *Wolffi*, Fieb., Port Mahon; *M. liturata*, Fieb., and *ragusana*, Küst., Gibraltar; and *M. aliena*, Fieb., Taormina, all by sweeping: *Lacometopus teucii*, Host., *Dictyonota Aubæi*, Sign., and *D. marmorea*, Barr., by sweeping at Cagliari: *Lopus lineolatus*, Brullé, common on flowers of "squill" (*Urginea*) in February at Malta: *Auchenocrepis Foreli*, Muls., Tangier, by sweeping: *Orthocephalus flavimarginatus*, Cost., and *O. minor*, Cost. (both sexes of each), Malta, not rarely under stones: *Xenocoris venustus*, Fieb., and *Lygus campestris*, Fab., Gibraltar, by sweeping; *Brachyceræ hyalinipennis*, Klug, Tangier: *Piezostethus bicolor*, Scholz, Corfu, in tufts: *Nabis longipennis*, Cost., Port Mahon, by beating herbage: *Emesodema domesticum*, Scop., Malta and Butrinto (Albania), under stones: *Coranus griseus*, Rossi, Gibraltar and Port Mahon, not uncommon under stones; in its earlier stages, this insect covers itself with dust, &c., à la *Reduvius*: *Pirates strepitans*, Ramb., Butrinto, and *P. stridulus*, Fab., Corfu, under stones: *Harpactor hæmorrhoidalis*, Fab., Malta, not rare under stones and herbage: *Reduvius testaceus*, H.-Schäff., rare, at Malta; possesses a very marked power of stridulation: *Oncocephalus squalidus*, Rossi, Tunis, in sandy places: *Metastemma guttula*, Fab., Gibraltar, Tangier, and Tunis, at roots of herbage: *M. sanguineum*, Rossi, Corfu, not rarely, by cutting tufts: *Velia rivulorum*, Fab., on running water, Palermo and Malta: *Naucoris maculatus*, Fab., among water-weed at Tangier.—JAMES J. WALKER, R.N., II. M. S. "Swiftsure," Plymouth: May 17th, 1875.

Occurrence in the north of Ireland of the true Otiorhynchus monticola, Germ.—On the 16th of June last, Mr. Allin and I captured at Kilkeel, County Down, four examples of an *Otiorhynchus*, evidently referable to *monticola*, Germ., which differs from our common northern species, *blandus*, Gyll., in being smaller, with the more visible elytral striæ extending to the apex, the rostrum merely punctate (not punctate-rugose), &c. These Irish specimens belong to the variety having the elytra more deeply striate, and with rugulose interstices; they are very small (6 millim.)—of the same size as individuals from the Pyrenees. They were found by grubbing at the roots of *Thymus serpyllum*, on the coast. The occurrence of a mountain species on the coast is very strange, but a parallel instance has been recorded by the Rev. T. Blackburn in Ent. M. M., xi, p. 112, where *Nebria Gyllenhali* and other mountain species are noted as having been captured on the coast in Shetland.—G. C. CHAMPION, 274, Walworth Road, London: August 14th, 1875.

Note on a few Irish and Welsh Coleoptera.—The following local species, amongst others, met with by Mr. Allin and myself, during a short stay last June, in North Wales, and at Newcastle, and in the North of Ireland, seem worth recording. I think, without exception, the latter locality is about the most unproductive I have yet visited. Scarcely anything but the commonest species (and those very rarely) occurred. Unfortunately, during our stay, both in Wales and in Ireland, it was wet nearly every day, and this, with the continual mists on the mountains, stopped our working long. I note *Pterostichus æthiops*, common under stones on Snowdon: *Harpalus neglectus*, on the sand-hills, Rhyl: *Bembidium saxatile*, on the coast at Kilkeel (County Down): *Phytosus spinifer*, on the coast at Newcastle (County Down): *Oxyptoda rupicola*, Rye, in moss on summit of Snowdon, and also under stones on summit of Slieve Donard (County Down): *Homalota eremita*, *clavipes*, *tibialis*, &c., in moss on mountain tops, in same localities as preceding: *H. valida*, Sharp, and *nitidula*, summit of Slieve Donard: *Mycetoporus tenuis* (Sharp), not rare in moss on summit of Snowdon: *Staphylinus erythropterus*, on the coast of Kilkeel: *Anthophagus alpinus*, on summit of Slieve Donard and Snowdon: *Geodromicus globulicollis*, common, and *Acidota crenata*, rarely, in moss on summit of Snowdon: *Homalium riparium*, abundant on coast at Newcastle: *Saprinus maritimus*, coast, Newcastle: *Cryptohypnus maritimus*, Lough-side, Llanberis: *Hydrocyphon deflexicollis*, on alders, Capel Curig: *Otiorhynchus maurus*, var., Slieve Donard: *Mesites Tardii*, in mountain ash, Tollymore Park (County Down): *Chrysomela cerealis* (a beautiful object when crawling about in the sunshine), not uncommon, amongst stunted wild thyme on a slope of Snowdon, at an elevation of about 2800 feet, &c.

I believe one or two of the above species have not hitherto been recorded out of Scotland.—ID.

Prionoplus reticularis, White, in England.—A specimen of this fine New Zealand Longicorn flew into the bar of the "Ship," in the Kennington Road, on the evening of the 26th inst., and was placed under a tumbler as a strange "bug" for me; when I saw it, I recognized it as one of the *Prionida*, not found in Europe, and upon looking over the New Zealand Longicorns, found it to be the above insect.

Although the North American species *Monochamus dentator*, and I believe others, have been taken here, imported probably in the larval or pupal state, I am not aware of the occurrence before of this insect in Britain.

The insect is alive and very active; while I am writing this, it has feasted on some decayed apple, and seems quite content with its home (a Lepidopterous breeding cage). Nothing, I believe, is known of the habits of the early stages of this insect.—C. G. HALL, Kennington, S.E.: *July, 1875.*

Capture of Anisoxya fuscula, Ill.—Yesterday I beat a single example of this rarity from an elm tree in this parish. In the net it looked like a small *Anaspis lateralis*, but it had a brownish hue, and did not behave like an *Anaspis*, so I resolved to take it. If it had been a better adept at mimicry, it would have illustrated the survival of the fittest, for it would have gone the way, out of the net, of most species of *Anaspis*; but failing in exact representation, it has increased the number of the illustrious dead. Its resting place on the leaf of an elm I take to have been casual, as the species is probably a feeder on fungus or rotten wood. I afterwards beat another example out of white-thorn branches which had been used to stop a gap in a hedge close by.—J. W. DOUGLAS, Lee: *7th August, 1872.*

Note on ravages of Otiorhynchus sulcatus.—This weevil is a great pest in nearly all the vineries about here, both in the perfect and larval states; the larvæ destroying all the fibrous roots, and the beetles sometimes eating the leader of the vines completely off, which, in a young cane, is a serious injury. I have found numbers of them in the garden; so no doubt they have been brought into the vineries with the soil. In some vineries close to us, the proprietors took out the whole vine border and put a fresh one in, only to find things as bad as ever. Hand picking at night seems to be the only resource; our gardener catches as many as 30 or 40 in a night. But, of course, we cannot do that with the larvæ, or it would disturb the vines too much.—H. H. BOLTON, Jun., Newchurch: *July, 1875.*

Meloe brevicollis near London.—I have recently taken this rare species at Dartford. It has, I believe, been found near Reigate; but the majority of the few British specimens are from the neighbourhood of Plymouth.—ERNEST S. SPIERS, 21, Bernard Street, Russell Square, W.C.: *July, 1875.*

Occurrence in Britain of the galls of Andricus glandium, Gir.—I have discovered in Cadder Wilderness, and at Ardlui, Loch Lomond, two or three galls of *Andricus glandium*, Giraud, Verh. zool.-bot. Gesellsch. Wien, 1859, ix, p. 355; Mayr, Die Mitteleuropäischen Eichen-gallen, p. 66, pl. vii, f. 92. My specimens were collected in early summer, and only have produced *Synergi* so far. The autumn is the best time to search for the galls.—P. CAMERON, Jun., 136, West Graham Street, Glasgow: *23rd July, 1875.*

Vanessa Antiopa at Chertsey.—I beg to inform you that on the 10th of this month I caught, on St. Ann's Hill, Chertsey (Surrey), on a windy and cloudy afternoon, a splendid specimen of *Vanessa Antiopa*.—ALEX. WAILLY, 110, Clapham Road, S.W.: *21st August, 1875.*

Description of the larva of Xylomiges conspicillaris.—I am indebted to Messrs. Farn and Bird for the opportunity of describing the larva of this species (locality, near Dartford).

Larva stout, cylindrical; incisions slightly compressed. Head hemispherical, shining, rather flattened in front. Colour dull greenish-brown with an ochreous tinge, the sides darker, all the markings faintly indicated. An indistinct grey dorsal chain pattern, each ring enclosing a grey spot. A wide, reddish-ochreous, spiracular band, the sides above it broadly shaded with grey, spiracles white, edged with black, *usual spots white surrounded with grey*. Head reddish-ochreous or pinkish-brown, reticulated with dark brown, a sepia-coloured dash on the inside of each lobe. Belly dull greenish, the sides dusted with greyish-brown. When young, the larva has a prominent orange spiracular band. Feeds on *Lotus corniculatus*, *Polygonum aviculare*, and various low plants, and is full-fed towards the end of June.—C. FENN, Lee: July, 1875.

Description of the larva, &c., of Cleora glabraria.—For some acquaintance with this species in the larval state I have been indebted to Mr. B. Lockyer, who, on the 1st of June last, kindly sent me a larva, and on the 10th six others; and to these were added four more on the 22nd, from Mr. Tate of Lyndhurst; all of these having been found by him feeding on *Usnea barbata* growing on oaks in the New Forest.

With the exception of the first individual, which died the morning after its arrival, these larvæ were very active, and fed well on the extreme points of the lichen, eating them down rapidly for about an eighth of an inch, and sometimes eating off the nodes, and more rarely the cuticle from the larger branches. I was attentive to keep their food changed, and to moisten it with water thrice a day, as I soon found, if it became at all dry, they were unable to feed.

One larva was contracting for its final change when it arrived, but had not strength to complete it; on the 16th of the month another had apparently ceased to feed, and would no longer remain on the lichen, but would mount to the gauze cover of its cage, persistently returning to it as often as removed; various substances and soils were supplied to induce it to spin up, but in vain,—however, after the lapse of some days, the mystery of its strange behaviour was cleared up by the appearance, close by it, of an ichneumon cocoon, or rather batch of four or five small cocoons spun on the gauze: another, later on, was victimized in precisely the same manner, while three others proved healthy and vigorous, retiring, when full-fed, into the wet tree-moss kept beneath the lichens, where I observed they had each hollowed out a small cavity, which was kept in an oval shape by help of a few threads, rather far apart, spun across the opening; but these could scarcely be called cocoons, for, when looking about a week afterwards, on the 28th, for the pupæ, two of them rolled out into my hand on taking up the moss, so little coherence had these slightly-made puparia.

Of the remaining four larvæ, two pupated as above described, and two proved to be ichneumonized, one of these dying quite rigid, and the other lingering on, attached to the cocoon of its parasite, for some time after the pupæ had disclosed the moths, which proved fine specimens, appearing from July 11th to 21st.

The full-grown larva is nearly one inch in length, moderately slender, and of about uniform substance throughout, the head, a trifle less than the second segment, is a little flattened in front; the segments of the body very well defined, the thoracic ories as usual, each of the others having a wrinkle across the back at the distance of

one-third from the beginning, and three others near the end; the anterior legs developed in gradation, the shortest pair in front, the second pair a little longer, and the third pair the longest; the ventral and anal pairs well developed.

In colour the head is pale greenish-white in front, light glaucous-green at the sides, reticulated with whitish; near the crown, on each lobe, is a black streak undulating down to the antennal papillus, and bounding the whiter face from the greener side of the head; above the mouth is a triangular mark of blackish-brown atoms: the ground colour of the body generally is a pale blue-green, that of the back has a more lively green tinge, though so pale as to be a greenish-white; through the back can be distinguished the dorsal line by its bluer tinge, besides a small streak on either side of it anteriorly on each segment, excepting the thoracic, which are broadly divided with it; but the chief feature of the back is the row of black spots, viz.: one rather oblong spot on the whitest portion on each thoracic segment, and on the others an oblong spot just at the beginning, and another thicker, of a blunt spear-head shape, about midway towards the end of each segment, and a small spot on the anal tip,—these are upon the dorsal line; along the boundary of the whitish colour of the back runs the row of sub-dorsal black dashes; these are short and situated midway on the thoracic segments, and on the others are behind the first wrinkle extending nearly to the segmental division; these vary in individuals, being in some simple oblong dashes, while in others they appear open at one end, and in others again at both ends, suggestive of parallel streaks run together in the middle; but in all, each of these dashes is bounded below by a greenish-white dash of the same extent, followed by a group of two or three small angular black spots or streaks, amongst which is the spiracle, which, though appearing blackish, has a faint flesh-coloured centre; next runs the inflated greenish-white sub-spiracular stripe marked with a black dash at beginning of each segment, except on the anterior ones, which are marked in the middle with a squarish spot, and a small black spot is at the base of each anterior leg; the belly has a central faint greenish-white line with a black elongate mark on it at about the middle of each segment from the fifth to the ninth, both inclusive; a little more behind, on each side the central line, are a twin pair of black specks, and a couple of greenish-white spots on each side at the beginning of each of these segments; a very small black mark is at the inside base of each anterior leg: the anterior legs are glistening, the head and body are smooth without gloss: the tubercular dots are excessively small and dusky, each emitting a fine bristly hair.

The pupa measures about half-an-inch in length, and in its greatest diameter, at the ends of the wings, one-eighth of an inch; the eye-covers rather prominent, and the abdominal divisions deeply cut, the anal tip bearing a spike finely forked at its extremity: at the end of the first week the wings were olive-green, the other parts brown, the anal spike blackish; the whole surface glossy.—WILLIAM BUCKLER, Emsworth: *July 30th, 1875.*

A new British Tortrix—Ablabia argentana, Cl.—On July 10th I found a pretty white moth, which was evidently a species new to our lists, flying amongst the grass on the side of a mountain in Athole, Perthshire, and having called the attention of my companions, Sir Thomas Moncreiffe and Mr. W. Herd, to it, we managed to secure a few more specimens. This moth, Sir T. Moncreiffe has since identified with

Hübner's fig. 86, *argentana*, Cl., and *gouana*, L., of Herrich-Schäffer, vol. iv, p. 177. I have not my copy of Herrich-Schäffer here, so cannot refer to his description, but our insect may be thus briefly described:—Exp. al. 10"—1'. Front-wings shining satiny-white with a very slight ochreous tinge along the costa and hind margin. Hind-wings very pale greyish-ochreous with some of the veins and hind margin very narrowly fuscous. The under-side of the front-wing is almost entirely black, except the tip, which is grey. The costa of the under-side of the hind-wing is also blackish.

Staudinger places *argentana* in the genus *Sciaphila*, Tr., section A, *Ablabia*, Stph., and gives its distribution as follows:—Germany, Alps, South-East France, Andalusia, and Russia. Like its congener *A. pratana*, the habits of *A. argentana* are more those of one of the Crambites than of a Tortrix.—F. BUCHANAN WHITE, Rannoch: July 26th, 1875.

Is Larentia cæsiata double-brooded?—Mr. Hellins asks (E. M. M., xii, 7) whether *Larentia ruficinctata*, Gn., and *L. cæsiata*, Lang., are double-brooded, and this question seems to have given rise to some discussion—both public and private—amongst entomologists. In the South of England, and in captivity, very possibly both species may be made to produce two or even three broods in a year; but in Scotland, and in a state of nature, there does not, as far as I am aware, seem to be the slightest ground for supposing that either species has more than a single brood.

The earliest date on which I have seen *L. cæsiata*, appears, from my note-book, to be June 8th, and from then till the beginning of August it continues to appear from the pupa, whilst worn specimens may be found even as late as the beginning of September. July, however, is the chief month in which it occurs. The larva may be found up to the 3rd or 4th week in June.

The earliest date on which I have met with *L. ruficinctata* is the beginning of July, and from that time till the middle of August it may be found in good condition. Considering the high altitude at which it often occurs, it seems impossible that more than one brood in the year can be accomplished. The lowest locality in which I have seen it is 600 feet above the sea, and in a mountain glen; and I have met with it in various places at 1300, 1700, 2500, and up to nearly 3000 feet.

As to the food-plants of these species, Ling (*Calluna*) seems to be the chief food-plant of *cæsiata*; but it may be also found, not uncommonly, feeding in company with the larvæ of *ruficinctata*, upon *Saxifraga aizoides*. The great food of *ruficinctata* is undoubtedly the leaves of *Saxifraga aizoides*, though no doubt other Saxifrages would be readily eaten.

One word as to the name "*ruficinctata*." I am at a loss to know why this recent and inappropriate name has been adopted in Britain, when the much more applicable name, *flavicinctata*, Hb., has not only the priority, but has been much more greatly used in Britain. (*Ruficinctaria*, Gn., it should be remembered, is a variety of *salicata*).—ID.

The food-plant in Britain of the larva of Zelleria saxifragæ.—This larva is figured in the "Natural History of the Tineina" from specimens found in Switzerland feeding on *Saxifraga aizoon*. This is not a British plant, so when the *Zelleria* was found in Britain, it was evident that some other Saxifrage must serve as a food-

plant also. I suspected that *S. aizoides* would be the plant selected, and my suspicions were verified the other day by finding the larva on this Saxifrage, and also on *S. oppositifolia*. The larva of *Larentia flavicinctata* also feeds on these Saxifrages. I first found *Zelleria saxifragæ* in Braemar, and have since seen it in the following districts of Perthshire, viz.: Athole, Breadalbane, Rannoch, and Lomond. The larva is full-fed at the end of June, and the moth may be found in July and August, resting on, or flying amongst, the flowers of the Saxifrage, or more rarely at rest upon rocks.—ID.: *August 4th*, 1875.

Notes on Tortrices of the genus Cochylis.—My friend Mr. Barrett, in the February number (Vol. xi, p. 196) of this Magazine, quoting M. Jourdheuille, says of *Francillana*, "larva in dried stems of previous year's *Eryngium campestre*." As Mr. Barrett surmised, this information as regards *Francillana* is incorrect: the larva which feeds in the stems of *Eryngium* is *flagellana*, Dup.

Considerable confusion exists in Germany with regard to this species and its allies, and I would propose the following correction to Dr. Wocke's catalogue:

No. 859. SANGUINANA, Tr., viii, 116 (1830); Dup., ix, 259, 2; H.-S., iv, 182; Hein., 77. *Baumanniana*, Hüb., Tor., 148 (*nec* S. V.).

860. FRANCILLANA, F., E. S., p. 264; Don., Nat. Hist., x, t. 351, 1; Wood, 1152; Wilk., 312; *flagellana*, H.-S., 345, iv, p. 182.

862. FLAGELLANA, Dup., ix, 259, 6; H.-S., 95, iv, p. 182; Heyden, Ste. Z., 1862. *Francillana*, Hein., p. 80; *eryngiana*, Heyd., St. ent. Z., 1865, p. 100.

Sanguinana, Tr., is a very distinct species, which cannot be confounded with its allies, being distinguished by its larger size, greater breadth of wing, particularly wide fasciæ, and the presence of numerous metallic specks, especially on the edges of the fasciæ. It is recognizably figured by Hübner (as *Baumanniana*) and Duponchel, and, according to Treitschke and Von Heyden, the larva feeds in stems of *Eryngium* (if not confounded with that of *flagellana*).

Francillana, Fab., does not appear to be known on the continent, yet it is well figured by Herrich-Schäffer (fig. 345), but under the name of *flagellana*. It is indeed very much like *flagellana*, Dup., but it seems to have more elongated and pointed fore-wings; the two fasciæ are generally entire, they are, besides, rather broader than in *flagellana*, and are moreover dilated at, and produced along, the costa and inner margin; the costa at the base also appears to be more suffused with the dark colour.

Francillana, it appears, feeds in the seeds of carrot, and probably retires into the stems of the plant to hibernate, for it has also been bred from larvæ in the dried stems.

The *Francillana* of Von Heinemann (p. 80) is certainly *flagellana*, Dup., and he quotes, in error, the English authors. *Flagellana*, Dup., is unquestionably Von Heyden's *eryngiana*, and Duponchel's figure is very good. This insect is variable in its markings, it is exceedingly like *Francillana*, but the first fascia (and sometimes the second) is generally very distinctly interrupted at or before the costa, but at other times it is hardly so. The fasciæ are narrower, not, or only very slightly, dilated at the costa and inner margin. Herrich-Schäffer's fig. 95 is not good, being too pale.

The larvæ of *flagellana* feed in the stems of *Eryngium campestre*, several in the same stem. I have bred several moths from dried stems collected in the spring, the first appearing on the 26th of June, and the rest about the middle of July. I have still a number of living larvæ which show no sign of pupating. It is possible that this species feeds in the seeds, and M. Ed. Perris sent me, last autumn, a lot of seed heads inhabited by *Cochylis* larvæ, but I did not succeed in rearing them, neither have I noticed any traces of this larva when collecting the dried stems.

Dilucidana is very distinct from either *flagellana* or *Francillana*, the fasciæ are narrower, straighter, and more parallel, with the edges better defined, and not jagged, as in the other species: the first fascia is distinctly abbreviated near the costa, and the second is entire. This species appears quite unknown on the continent, and Von Heinemann gives it, in error, as synonymous with *Francillana*.

Dilucidana feeds in the stems of parsnip (*Pastinaca sativa*) and has also been bred abundantly from stems of *Heracleum sphondylium* by Mr. Wm. Machin.—E. L. RAGONOT, 27, Rue de Buffon, Paris: *August*, 1875.

On the habits of Psecadia flavitibiella.—Professor Zeller has again met with this insect at Bergün, in the Grisons, but has been again unsuccessful in his attempts to discover the larva. With regard to the imago, he has observed that copulation takes place by day, during bright sunshine. The ♀ sits on some broad leaf, or on a grass stem, whilst the males fly about in search of her; so that by attentively watching the direction in which the males are flying, it is possible to discover the quiescent female. On the 2nd June Professor Zeller saw two males fluttering in the grass, and whilst catching them he observed a female on a grass stem: directly afterwards came two more males flying towards this female: these were boxed, and more were expected, the female being carefully left untouched on her grass stem. No more males coming up just then, Professor Zeller walked away a little distance: on returning, after an interval of a minute, he found the female already copulated, and another male, which had arrived too late, was about to fly away again, but was intercepted. As the ♀ had now lost her attracting powers, she and consort were both boxed; and in this way six males were obtained by means of one female; and had she been watched more closely, other males might also have been obtained.

Thalictrum minus occurs in the localities frequented by this insect, but it does not seem to be specially favoured by the imago, and, as already mentioned, the larva has hitherto escaped detection.—H. T. STAINTON, Mountsfield, Lewisham: *August* 17th, 1875.

Description of the larva of Pterophorus rhododactylus.—On the 26th of May last, I and the Rev. T. W. Daltry, of Madeley, took the larvæ of *Pterophorus rhododactylus* rather freely; and as I am not aware of any previous description in this country, I have much pleasure in sending one.

Length about half-an-inch, and of tolerable bulk in proportion; body cylindrical and strongly attenuated towards the extremities; is considerably retractile, and when at rest has a dumpy appearance; the head is small, globular, smooth, and shining, about the same width, or perhaps very slightly narrower, than the second segment; the segmental divisions are distinctly marked; the skin soft, but has a slightly rough appearance, and is sparingly, though conspicuously, clothed with short hairs.

The ground-colour is a rather bright greenish-yellow, in some specimens yellowish-green; the head is greyish, with the cheeks and mandibles shining black. A very conspicuous purple stripe forms the medio-dorsal line,—from the 2nd to 6th segment this stripe appears as composed of round purplish marks joined at the segmental divisions, consequently the stripe is rather broad; on the remaining segments it is much narrower and more uniform, but equally distinct; the sub-dorsal and spiracular lines are yellow, but only faintly indicated; the segmental divisions are also yellow. The ventral surface and prolegs are uniformly dingy green or yellowish, according to the ground of the dorsal surface; legs black and shining.

The larvæ were found feeding on wild rose, beneath the leaf overlapping the rosebud, eating into the unexpanded bud from the side; others, however, were found feeding in similar positions at the tips of the young shoots. When full-grown those that have been feeding on the buds affix themselves to the side of the leaf close by the bud, and draw the leaf and the bud together by means of a few silken threads; the others draw together in a similar way several leaves at the end of the young shoot.

The pupa is about three-eighths to half-an-inch in length; pale green,—the wing-cases whitish,—the eye-antenna-and leg-cases, also the edging of the wing-cases, smoky-black.

On a subsequent visit to the locality (near Rochester) in the middle of July, I found a few of the pupæ, from which, in a few days, I reared some beautiful imagoes of this lovely species. The moth first appears at the beginning of July, and continues to emerge throughout the month.—GEO. T. PORBITT, Huddersfield: *August 3rd*, 1875.

The cycles of Entomology.—The late Mr. J. F. Stephens had a theory that Entomology, in England at least, ran in cycles; that is, that for periods of time attention was more devoted to one order of insects than to another. Of this, no one was better qualified than he to judge; for, being one of the few English Entomologists that possessed a collection of all the orders, which he liberally opened on one evening in every week to visitors, he was in a position to see how the current of collecting ran from time to time. He said, that, during a long course of years, the number of Coleopterists and Lepidopterists preponderated by turns; that at intervals, Hymenopterists and Dipterists appeared, and but rarely a collector of any other order. Since these pleasant and instructive meetings ceased, there have been no private general collections accessible to students, there has been no similar personal gauge of the number of collectors or students of the several orders, and we have had to rely for such information upon the record of "The Entomologists' Annual." Judging by this, Coleopterists and Lepidopterists, for some years, ran almost *pari passu*; now, the ardour of both seems to have abated, the "Annual" itself has ceased to exist, in a great measure, for want of additions to record; and if the collecting of butterflies and beetles still goes on in Britain, new species are rarely found. It may be there are not many more to be discovered that are new to the country or to science, and considering the number that have been added during the last twenty years, the unknown quantity is not likely to be very great.

But with respect to other orders, considering the few collectors thereof that

have ever existed in Britain, and the usually desultory methods of collecting used, I cannot but think there is a good deal of work that should be done by the present generation. British *Hymenoptera*, *Diptera*, and *Hemiptera*, at least, want looking for, and our knowledge of species put more on the level of the continent. I wish I could see some young collectors coming into the field who would turn their attention to one or other of the neglected orders, which are interesting, not only on account of the number of species, but also the wonders of their œconomy. Abroad, a renewed attention is being devoted to *Hemiptera*, which is evinced by the publication of lists and descriptive works in Italy, France, Sweden, Denmark, and Finland. In Britain, at present, it is not so much the amount of material that is wanting, as the number of workers, both operative and scientific. Doubtless it is best when the out-door and in-door qualifications are combined in one individual, but often, by force of circumstances, it is not possible to get them thus united; and, besides, some men are naturally hunters pure and simple (or otherwise), and others take only to books and the lamp. I confess that it seems to me, without some such extension of Entomology is developed in Britain, the science, in the next generation, as far as our native insects are concerned, is likely to be in a very low condition; that even now the number of native workers does not fulfil the promise of former years; and that the cycle will be deficient in quantity, as well as quality, of added knowledge of our Insect Fauna.—J. W. DOUGLAS, Lee: 31st May, 1875.

Reviews.

THE NATURALIST: Journal of the West Riding Consolidated Naturalists' Society. New Series. Edited by CHAS. P. HOBKIRK and G. T. PORRITT, F.L.S. No. 1, August, 1875. 8vo., pp. 1—16. Huddersfield: R. Brown.

The numerous local Yorkshire Natural History Societies and Field Clubs have made several efforts to sustain a journal, but hitherto with no persistent success. Let us hope this praiseworthy endeavour at resuscitation may meet with better support. It is a pity some other title had not been invented, if only for the very obvious reason of avoiding confusion in references. As a proof of the wide-spread interest in different branches of Natural History in this thickly populated district, it may be noted that the number before us contains reports of recent meetings of eight local societies; and there are several interesting papers on special subjects. The success, or otherwise, of the journal, depends mainly upon the manner in which the 'team' can be induced to pull well together, and therefore upon the leadership of the editors.

FIELD AND FOREST: devoted to general Natural History; Bulletin of the Potomac-side Naturalists' Club. C. R. DODGE, Editor. Parts 1 and 2 (June and July, 1875). Washington: The Columbia Press.

We regard it as a hopeful sign that our American neighbours are not only establishing Field Clubs, but beginning so far to feel their feet that they venture upon journalism. The salutatory introduction tells us that this particular Club is nearly twenty years old; and it makes a modest *début* as a publishing body by a well-printed monthly number of only eight pages. We trust it has taken for itself, and will act upon, the proverb:—"Ce n'est que le premier pas qui coûte."

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

*(continued from page 25.)*Genus *THAMNOTETTIX*.*THAMNOTETTIX NIGRICORNIS*, J. Sahlberg.

Orange-yellow or slightly greenish.

Crown with four black spots placed as follows:—two, large, near the anterior margin of the eyes of somewhat irregular shape, and two on the anterior margin, close together, continued on to the frons, and when viewed from in front appearing of a somewhat triangular form. *Face* with a more or less distinct short longitudinal streak on each side, extending from about in a line with the base of the antennæ to the base of the loræ; interior margin of the genæ and loræ narrowly black. *Antennæ*: 1st joint yellow, 2nd black, apex narrowly yellow; setæ black, base brown.

Thorax—*pronotum* yellow or somewhat greenish, with or without indications of four longitudinal black lines. *Scutellum* black or yellow, in the former case with three yellow V-shaped characters placed—one at each basal angle and the other round the apical margin, or in the latter with a triangular black spot near each basal angle. *Elytra* black, with the anterior margin and nerves, as far as the apical areas, orange-yellow or somewhat greenish (in the ♀ these characters are not so strongly defined); apical areas and nerves deep fuscous-black. *Sternum* black, shining, exterior margin of the *pro* and *mesonotum* yellow. *Legs* somewhat umber coloured or bright yellow. *Coxæ* black, apex dingy yellow. *Fulcræ* yellow. *Thighs*: 2nd and 3rd pairs with a short narrow line down the middle of the inside, at the apex. *Tibiæ*: outer margin narrowly black; 3rd pair, exterior margin spotted with black; spines brownish-yellow; down the inside a broad black streak; spines on the inner margin finer and paler than those exteriorly. *Tarsi* umber coloured or yellow, apex of the joints narrowly, and *claws* fuscous-black.

Abdomen above and beneath black; side margins and posterior margins of two or three of the terminal segments narrowly yellow.

Length 2–2½ lines.

Very closely allied to *T. 4-notatus*, but more elongate, and by the characters on the elytra may at once be distinguished from that species.

I have only seen this species since the publication of the other portion of this genus. It was taken by Dr. Power, at Colton, in Somersetshire, in August.

NOTE.—On page 24 *ante*, species 7, for *punctifrons*, Fall., substitute *Torneella*, Zett.

Lee: *July*, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Description of a new genus and species of the family DELPHACIDÆ.

Genus EURYBREGMA.

♂. Developed form.

Head—*crown* almost twice as broad as the length measured down the centre; central keels obsolete; base with two deepish foveæ with the usual M-shaped marginal keels, and in the apex of which exteriorly, is a third small fovea, anterior margin slightly convex, but a little way in front of the eyes. *Face* with rudimentary indications of two keels, approximating and uniting at the apex; side margins slightly concave between the eyes. *Antennæ* short, reaching to or a little beyond the base of the clypeus; 1st joint longer than thick, somewhat cylindrical, and shorter than the slightly clavate 2nd joint.

Thorax—*pronotum*: side keels near to the eyes, curving round parallel with their posterior margin and not reaching the lateral margin. *Scutellum* with a central and two side keels, the former not reaching the apex, the latter almost parallel with the former, joining the sides at the base of the triangle. *Legs*—*tibiæ*: spur at the apex of the 3rd pair triangular, flat; lower margin convex, finely serrate. *Tarsi*: 3rd pair, 1st joint long, equal in length to the other two.

This genus stands near to that of *Eurysa*, Fieb., but the greater breadth of the head, difference in the side margins of the face between the eyes (in *Eurysa* these are convex), and form of the genitalia, at once shew their distinctness.

Species EURYBREGMA NIGROLINEATA.

Head fuscous-brown. *Pronotum* and *scutellum* yellow, each with two black longitudinal lines. *Elytra* much longer than the abdomen, pale testaceous-white; nerve adjoining the anterior margin and the nerve adjoining the claval suture broadly margined with brown, becoming darker as it reaches the transverse nerves, from whence to round the apex it is broadly black.

Head—*crown* fuscous-brown; foveæ black, keel between the two basal ones yellow.

Face fuscous-brown, paler towards the apex; on each side between the latter and the lower margin of the eyes an oval black patch. *Antennæ* pale yellow, slightly dusky.

Thorax—*pronotum* pale yellow, lateral margins and a streak down each side of the centre black, in the middle of the latter a small fovea. *Scutellum* orange-yellow; side keels black; central keel white. *Elytra* pale testaceous-white. *Clavus*:

between the suture and the first nerve brownish, darkest next the nerve. *Corium*: between the anterior margin and the first nerve almost white, the latter margined with brown, widening and becoming darker as it approaches the transverse nerves, from thence to the apex black; nerve adjoining the claval suture margined with brown, becoming darker as it approaches and extends to the latter from thence to the apex black, where it is united to that down the anterior margin. *Wings* pale, nerves black narrowly margined with pale fuscous. *Sternum*: sides of the segments black margined with yellow. *Legs* pale fuscous-testaceous. *Thighs* with a longitudinal black streak down the inside.

Abdomen black; dorsal line and side margins narrowly yellow; last genital segment black, posterior margin almost perpendicular, near the upper margin on the side a somewhat triangular yellow patch; opening viewed from behind almost circular; styles long, aculeate, diverging as they ascend, and almost touching the margin in a line with the tube.

♀. Unknown.

Length $2\frac{1}{2}$ lines, nearly.

In stature between *Delphax pulchella*, Curt., and *Liburnia speciosa*, Boh., to both of which it may be said to bear a rough resemblance. From the former the difference in the shape of the antennæ will show that they do not belong to the same genus, and from the latter the broader head, absence of keels, and difference in length of the joints, of the antennæ, are sufficiently distinguishing characters.

I took a single ♂ example at Fawley, by sweeping, in June of the present year.

Lee: *July*, 1875.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

[*Revision of the genus* ATHYSANUS, *and descriptions of species.*]

The insects comprised in this genus form, in part, the second sub-generic division out of four into which Burmeister, in his "Genera Insectorum," vol. i, separated the species representing the genus *Iassus*, Germar. For his type he took the *Cicada argentata*, Fab. (a species not known to be found in Britain), and all subsequent authors have adopted his type, and raised the group to its present from its somewhat lower state. The drawings in Burmeister's Gen. Ins. are probably unequalled for correct outline and for details of the various parts of the creatures. Since this is so, it seems to me very remarkable that out of the nine species he enumerates four of these relate to the genus *Acocephalus*, Germ., which had been previously figured in

the same work, and where the genitalia (which he himself points to as a leading generic character), as well as the shape of the head, ought to have indicated their true position.

In 1858, Kirschbaum published his "Athysanus-Arten," consisting of eighteen species, eleven of which he described as new; but two of these, *diminutus* and *sulphureus*, being only (according to Fieber) respectively *interstitialis*, Germ., and *impictifrons*, Boh., the number is reduced to sixteen. Still further, three other species are referable to as many other genera, viz., *brevis* to *Goniagnathus*, Fieb., *ventralis* to *Graphocrærus*, Thoms., and *stylatus* to *Doratura*, J. Sahlb.; so that in all there remain but thirteen representatives of the genus. This condition of matters remained pretty much in the same state until 1868, when Kirschbaum's "Cicadinen der Gegend von Wiesbaden u. Frankfurt" appeared, in which are recorded no fewer than thirty-nine species. Five of these I have already referred to other genera, and of the remainder nineteen figure as his own. Here Fieber again steps in and extracts eleven others, for the following reasons, viz., *lacteiner-vis* which he consigns to his genus *Allygus*: *proceps*, *Minkii*, *convexus*, *sejungendus*, *Schenckii*, *incisus*, *pallidior*, and *anomalus*, species resting for the most part on the authority of single specimens (some of one sex and some of the other) in the author's collection, and which he refused Fieber a sight of after various applications (see Verh. z.-b. Wien, pp. 27—33 [1872]); two others, *confusus* and *validinervis*, which Fieber knew, he refers to *sordidus* and *griseus*, Zett. Assuming this to be the true state of things, then Kirschbaum has really added eight good species to the genus. But there still remain three other species to be dealt with before the list is thoroughly purged; these are *lineatus* and *Preyssleri* both belonging to the genus *Thamnottetix*, Scott (Fieb.), and *homophyla* to that of *Doratura*, J. Sahlb. After all this dissection, there are twenty species left, of which we have ten, and, in addition, five others unknown to Kirschbaum. Many of the species are only met with in the brachypterous state, and some of them in great abundance.

To facilitate the recognition of the species, I have divided them into three apparently natural sections, as follows:

SECTION A.—Distance between the inner margin of the eyes at the base of the head not twice as great as the length down the centre; anterior margin very slightly rounded, angle somewhat acute.

SECTION B.—Distance between the inner margin of the eyes at the base of the head twice as great as the length down the centre.

SECTION C.—Distance between the inner margin of the eyes at the base of the head more than twice the length down the centre ; anterior margin sub-rotundate.

SECTION A.

Crown pale ochreous, without markings. *Face* without transverse streaks ; round the upper margin a somewhat broken black line or streak. *Elytra* about as long as the abdomen, ashy-grey, farinose ; claval suture narrowly pale fuscous.
 Length, 2—2¼ lines.....1. CANESCENS, Doug. & Scott.

A full description of this insect will be found in the Ent. Mo. Mag., vol. ix, 210 (1873). We have no other species with which it can be confounded.

Crown testaceous, inclined to yellowish, with an almost obsolete arcuate brown streak before the anterior margin, and another transverse, short, straight one, also almost obsolete, in a line with the anterior margin of the eyes. *Face* yellowish, with about nine finely undulating, transverse, black streaks on each side. *Elytra* testaceous-yellow, or with a greenish tinge, covering little more than half of the abdomen ; nerves, especially posteriorly, very finely but irregularly margined with black ; apical areas more or less black

Abdomen : above yellowish, more or less black upon the sides ; side margins narrowly yellow ; posterior margin of the last three segments narrowly black, and across the middle of each an irregular row of minute black spots. Length, 1½—1¾ lines 2. DEPRESSUS, n. sp.

A flatter and broader insect than *A. brevipennis*, Kirschb., to which it is very closely related ; but it differs from that species in having the nerves of the elytra margined with black, also the apical areas of the same colour.

The only specimens I have seen were taken by the Rev. T. A. Marshall at Braemar ; the date is not given.

Crown yellowish or testaceous, with an arcuate brown streak before the anterior margin, and a transverse, short, straight one of the same colour in a line with the anterior margins of the eyes. *Face* black, with a narrow yellow central line, and about seven transverse ones of the same colour on each side, the alternate spaces about equal in width. *Elytra* dusky-testaceous or pitchy-brown, longer than the abdomen, with pale nerves ; the areas more or less pitchy-brown.

Length, 1¾—2 lines...3.

GRISESCENS, Zett.

(cognatus, Doug. & Scott.

validinervis, Kirschb. ♀.)

Somewhat after the form of *A. sordidus* or *plebeius* ; but the characters on the head are different from either of those species.

This species is fully described in Ent. Mo. Mag., vol. ix, 211 (1873), and although I have only seen the examples in the collections

of Mr. Douglas and my own, yet it is not impossible that it may be found mixed up with the two species named above in the cabinets of other collectors.

Crown testaceous, with an arcuate black streak at the anterior margin, and a frequently interrupted transverse streak of the same colour in a line with the anterior margin of the eyes; frequently these characters are almost obsolete. *Face* black, with 7—8 fine transverse, curved, yellowish lines on each side, the two next the apex generally appearing as spots; down the centre a narrow yellow line, frequently wanting. *Clypeus* black, with a broadish yellow margin. *Loræ* yellow, more or less broadly margined with black. *Elytra* as long as, or slightly shorter than, the abdomen, testaceous. *Clavus*: on one or both sides narrowly margined with brown, and frequently broken up into spots. *Corium*: next the claval suture with a brown streak; all the areas more or less brown; apical areas generally brown; sometimes the entire disc is pitchy-brown, leaving the nerves here and there narrowly testaceous. *Thighs*: 1st pair yellow, with a broad black ring at the base, and another narrow one before the apex; these are very often represented by two spots on the lower margin, or are entirely absent. Length, $1\frac{1}{2}$ — $1\frac{3}{4}$ lines 4. *SORDIDUS*, Zett. (*confusus*, Kirschb.).

The characters on the head are somewhat like those of *A. grisescens*, but their position is different, whilst those on the elytra more resemble *A. obsoletus*, a species much larger than the one just described.

Elytra testaceous; nerves on both sides, and frequently the areas, more or less irrorated with fuscous-black. *Clavus*: apex narrowly, and apex of the nerves white. *Crown* with a very narrow black central line extending from the base to about in a line with the anterior margin of the eyes; near the base, and nearer to the eyes than the centre, a small black spot; in front two others slightly larger and close together; round the half of the ocelli next the eyes is a broad black border to which is joined an elongate black patch running somewhat obliquely towards the centre of the basal margin. *Face—frons* with a lunate black patch on either side, below which are seven or eight transverse black streaks. *Thighs*: first and second pairs with the apex narrowly and two rings, the basal one broadest, black 5. *IRRORATUS*, n. sp.

Extremely like *A. obscurellus*, and probably may be mixed up with this species in collections, but the narrower head and characters on it, and the elytra, will lead to its identity.

SECTION B.

Distance between the inner margin of the eyes at the base twice as great as the length down the centre.

a. Anterior margin distinctly rounded; angle somewhat obtuse.

♂. *Crown* black, with a narrow yellow arcuate line on the anterior margin, slightly widest in the middle, and extending from eye to eye; basal margin with two

small yellow spots placed nearer to the eyes than the middle. *Ocelli* bright red. *Face* black, with two or three short, obscure, yellowish, transverse streaks on the frons. *Pronotum* black, finely wrinkled transversely, except a small portion next the anterior margin, which is slightly raised above the other portion of the disc; behind each eye a somewhat indistinct yellow spot. *Scutellum* black, base with a small dusky-yellow spot on each side of the centre; sides, from in a line with the transverse channel to the apex, narrowly yellow, forming a distinct V-shaped character. *Elytra* pitchy-black, longer than the abdomen. *Clavus*: here and there between the nerves finely reticulated transversely with yellowish. *Corium*: between the claval suture and the adjoining nerve finely reticulated transversely with yellowish; adjoining ante-apical areas down the middle testaceous-white; the pitchy-black portion thickly and minutely dotted with testaceous-white. *Legs* black. *Thighs*: 1st and 3rd pairs at the apex sordid yellow. *Tibiae*: 1st pair sordid yellow, anterior margin black; 3rd black, anterior margin sordid yellow spotted with black, in which the long brownish-yellow spines are set.

- ♀. *Crown* testaceous-yellow, with a black spot on each side of the middle near the anterior margin; basal half black; posterior margin narrowly, and four spots attached, testaceous-yellow. *Face* black, with seven or eight short, fine, transverse yellowish streaks. *Elytra* paler than in the other sex, and the reticulation more distinct. The other characters nearly as in the ♂. Length, ♂, 2, ♀, 2½ lines.

G. PICEUS, n. sp.

Its black appearance will at once lead to its recognition.

I have only seen two specimens (♂ & ♀), the latter in the collection of Mr. Douglas, sent to him by the late Mr. T. J. Bold; the former in my own collection, taken by Mr. T. Wilkinson near Scarborough some years ago. The insect has been submitted to M. Lethierry and Mr. J. Sahlberg, and was returned as unknown to them.

Crown pale testaceous, with a triangular black spot in front before the anterior margin, sometimes continued in a linear form as far as the ocelli; in the middle two black spots about equidistant from each eye and each other; near the base and adjoining each eye a small black spot, sometimes obsolete. *Face* pale or somewhat greyish-testaceous, with about nine transverse, curved, black streaks, frequently united by a black border interiorly, and leaving a fine, pale, central line. *Clypeus* and *loræ* pale, the former with a more or less distinct small black or brown spot near the apex. *Elytra* as long as the abdomen, pale testaceous; claval suture narrowly brown; inner margin of all the nerves finely reticulated with brown, the reticulation more prominent in some individuals than in others, and not unfrequently altogether wanting. *Thighs*: 1st pair with a short black dash on the inside at the base, and two of the same colour on the lower margin. Length, 2—2½ lines 7. OBSOLETUS, Kirschb.

The characters on the elytra are somewhat similar to those of *A. sordidus*; but the above insect is always much paler and larger than that species, and, independently of this, the markings on the head are entirely different.

Crown yellowish, with eight black spots, placed six on the anterior margin, the largest next the eyes and somewhat square, the smallest somewhat rounded next the centre; at the base a brownish spot, enclosed by a narrow black border. *Face* yellowish, with about eight transverse black streaks on each side, and a pale brownish curved one on the upper margin. *Clypeus*: next the apex with a black spot: *loræ* margined with black. In many examples the whole of the characters on the head are almost obsolete. *Elytra* longer than the abdomen, very pale testaceous; nerves on both sides and some of the areas more or less thickly, finely and irregularly powdered with piceous; on the disc five pale milky-white spots placed one in a line with the apex of the scutellum between the claval suture and central nerve, another at the apex of that nerve, and one at the base and apex of the ante-apical area immediately below the basal area. *Wings* entirely pale. Length, $1\frac{3}{4}$ lines 8. PLEBEIUS, Fall.

This species may easily be separated from *A. obscurellus*, to which it is allied, by the milk-white spots on the elytra (most visible when the insect is in repose), the difference in the characters on the head, and the pale wings.

Crown black, with a yellow T-shaped character in front, in the upper part of which and just before the anterior margin are four black spots, frequently united; on each side at the base a narrow, semi-oval, narrow streak extending between the central line and the inner margin of the eye. *Face* black, with from six to eight fine yellow transverse lines on each side. *Clypeus* black, very narrowly margined with yellow: *loræ* black, with a more or less large yellow spot in the middle. *Elytra* longer than the abdomen, yellowish or yellowish-testaceous, thickly and very finely spotted with dark fuscous or black, somewhat disposed in longitudinal rows; sometimes the spots are united at irregular intervals, varying in different individuals, and forming short lines, giving to the disc a somewhat reticulated appearance. *Wings* dark fuscous at the base and apex. *Thighs*: 1st pair black, base, a narrow ring before the apex, and the latter itself yellow.

Length, $1\frac{1}{2}$ —2 lines 9. OBSCURELLUS, Kirschb.

In repose, this insect has always a dusky appearance, which varies much in intensity. The absence of the milk-white spots on the elytra is sufficient to distinguish it from *A. plebeius*.

This is the insect which has been doing duty in the collections of this country under the name of *Strongylocephalus agrestis*, Fall.

b. Anterior margin distinctly rounded; angle somewhat acute.

Crown yellowish-white, with a narrow, curved, black streak on each side of the centre before the anterior margin; across the middle a narrow, elongate, lozenge-shaped, pale brown patch, its extremities joined to two short longitudinal lines, which reach the base and enclose between them two yellowish-white spots. *Face* black, with about six short, slightly curved, transverse, yellow streaks on each side, and a narrow yellow central line terminating in a spot of the same colour at the apex. *Clypeus* black, with a yellow spot on each side at the base; some-

times the face is yellowish, with six or seven short slightly curved black streaks. *Elytra* much longer than the abdomen, yellow. *Clavus* with a narrow brown line down the inner margin of the dorsal nerve, interrupted by the white apices of the nerves. *Corium*: anterior marginal nerve somewhat brownish-yellow; apices of the ante-apical areas frequently brown; nerves slightly paler than the disc. *Thighs*: 1st pair yellow, more or less black at the base, and with a narrow black ring before the apex, sometimes only represented by a spot on the inside.

Length, $2\frac{1}{2}$ lines.....10. SUBFUSCULUS, Fall.

In general appearance, this insect bears a strong resemblance to the following one, from which it may at once be distinguished by the absence of the black spots in the clavus and corium.

On the continent, two other species belonging to this group occur, viz., *A. erythrostictus*, Fieb., and *A. simplex*, H.-Sch., and I think it very probable that they may be met with in this country. Both have pale heads as in *A. dilutior*, and, when in repose, they much resemble the ♀ of *A. subfuscus* in the elytra.

Crown yellowish-white, with a somewhat triangular pale brownish spot in the middle on each side of the centre. *Face* testaceous-yellow, with about seven short, curved, transverse pale brown lines on each side, slightly broader than the pale spaces: *loræ* at the base with a short narrow brown margin. *Elytra* much longer than the abdomen, yellowish-testaceous. *Clavus* with two short longitudinal black streaks, one adjoining the claval suture and about in a line with the apex of the scutellum, the other situated a little higher up; apices of the nerves white; apex narrowly piceous. *Corium* with two short longitudinal black streaks, placed one near the apex of the basal area, and the other near the base of the ante-apical area immediately below it. *Thighs*: 1st pair with a narrow black streak down the inside, in some cases obsolete. Length, $2\frac{1}{2}$ lines.

11. DILUTIOR, Kirschb. (*flebilis*, Fieb.).

The pale head and black streaks on the elytra of this species will at once serve to separate it from the foregoing.

Crown pale testaceous, without markings. *Face* pale testaceous, the upper portion with sometimes three or four short transverse brownish streaks. *Elytra* much longer than the abdomen, pale yellowish-green; apex slightly brownish; nerves paler than the disc. *Thighs*: 1st pair yellow. Length, $2\frac{1}{2}$ —3 lines.

12. PRASINUS, Fall.

According to Fieber, this is *A. Zelleri*, Kirschb., and *A. prasinus*, Kirschb., is *A. simplex*, H.-Schf.

Crown black, with a yellow anchoriform character in front, and two short transverse yellow streaks in a line with the anterior margin of the eyes, and two others near the base; basal margin narrowly, inner margin of the eyes and a spot near the latter, yellow. *Face* black, with seven or eight short, slightly curved, transverse yellow lines; down the centre a fine yellow line, terminating at the apex

in a spot of the same colour. *Pronotum* black, finely wrinkled transversely, and with numerous short, irregular, testaceous, transverse streaks. *Elytra* longer than the abdomen, greyish or pale yellowish-grey; all the nerves more or less broadly margined with black on both sides, giving to some of the areas an ocellated appearance; base of the ante-apical area immediately below the basal one with a conspicuous black spot, and frequently another lower down where the area contracts; the two dorsal apical areas black. *Thighs*: 1st pair black, with a yellowish spot or band just beyond the middle. Length, $1\frac{3}{4}$ line.

13. *STRIATULUS*, Fall.

From the pattern on the elytra, one is reminded of that on several of the *Deltocephali*, but the different form of the head at once removes it from that group. After the examination of several specimens, and comparing them with *Thamnotettix corniculus*, Marshall, described on page 23, *ante*, I am convinced that they belong to the same species, and Marshall's name must sink.

(To be continued).

BRITISH HEMIPTERA.—ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS AND JOHN SCOTT.

Section CAPSINA.

Family PILOPHORIDÆ.

Genus PILOPHORUS, Hahn.*

(*Camaronotus*, Fieb., Doug. and Scott).

Species 1.—PILOPHORUS CLAVATUS.

Cimex claratus, Lin., S. N., 729, 97; *Phytocoris claratus*, Burm., Handb., ii, 266, 1; *Capsus claratus*, Kirschb., Caps., 72, 80, and 137; Flor., Rhyn. Livl., i, 569, 59; *Camaronotus claratus*, Fieb., Eur. Hem., 313, 2.

Dark brown with a dull velvety appearance, and clothed with short appressed golden-yellow hairs. *Clavus* with one, *corium* with two, transverse silver-white bands, that on the clavus a little above the level of the second on the corium.

Head black, with a somewhat bronzy appearance. *Antennæ* brown; apical third of the 2nd joint black; 3rd black, base narrowly white or pale orange-white; 4th black, base very narrowly whitish.

Thorax—*pronotum* and *scutellum* black, with a somewhat bronzy appearance; the sides of the latter with a dull silvery margin. *Elytra* dark brown, with a dull velvety appearance, and clothed with short, appressed, golden-yellow hairs.

* All the continental authors having agreed to restore the Hahnian name to this genus, it being the older one, we have also adopted the same course.

Corium with two narrow silvery-white bands terminating at the claval suture, and placed, one in a line with the apex of the scutellum, the other, slightly arcuate, a little above the apex of the clavus. *Clavus* pitchy-brown, with a dull velvety appearance, with a transverse silvery-white band a little above the lower of the two on the corium; *cuneus*, a little below the base, with a fringe of silvery-white hairs. *Membrane* velvety-brown, with a broad iridescent margin; lesser cell, and a streak at the apex of the cuneus, white. *Prosternum*, on the sides, pitchy-black; *mesosternum*: posterior margin silvery-white. *Legs* brown; *coxae* and *fulcræ* pale yellowish-white; *thighs* brown, clearer and brighter, curved at the base and apex; *tibiæ* smoky-reddish-brown; *tarsi* brown; apex of the 3rd joint broadly black.

Abdomen, underneath, pitchy-brown, basal segments more or less broadly silvery-white, the colour slanting towards the middle and forming a lunate band.

Length, $1\frac{1}{2}$ line.

A trifle larger than *P. cinnamopterus*, and without its red colour. It is more nearly allied to *P. perplexus*, the following new species, but differs from both by the position of the silvery band on the clavus, and the absence of the white spot on the cuneus.

A few specimens were taken by us on sallows in a marshy place at Lee, in August.

Camaronotus clavatus, Brit. Hem., i, 360, 2. The description (exclusive of the synonymy) and the figure must be referred to *Pilophorus perplexus*. An amended description of this new species follows.

Species 2.—PILOPHORUS PERPLEXUS.

Camaronotus clavatus, Doug. and Scott, Brit. Hem., i, 360, 2 (*nec* Lin.).

Olive-brown with a dull velvety appearance. *Scutellum*: sides at the base and apex silvery-white. *Elytra* with two transverse silver-white bands, the upper one terminating at the claval suture, the lower one slightly angular, and continued across the clavus. *Cuneus* with a silvery-white spot at the inner basal angle.

Head black. *Face*: side-lobes more or less clear brown. *Antennæ* reddish-brown or brown; 2nd joint broadly shaded off into piceous or black at the apex; 3rd pale reddish, apical half darker; 4th brown, basal third or half white or pale yellowish-white.

Thorax—*pronotum* black, dull, with a deep green appearance in certain lights, very finely wrinkled transversely. *Scutellum* black, with a deep green appearance in certain lights; sides near the base with an elongate silvery-white spot; apex silvery-white, extreme apex black. *Elytra* olive-brown, with a dull velvety appearance, clothed with short, appressed, palish-yellow hairs. *Clavus* more or less deep pitchy-brown, with a dull velvety appearance, apex from below the band somewhat shining and finely wrinkled transversely. *Corium* more or less deep olive-brown, the entire part below the lower band, lying between the anterior margin and the nerve, piceous, somewhat shining; in a line with the

apex of the clavus is a silvery-white band terminating at the claval suture, and at about one-third the distance from the apex is another similar one, slightly angulate (in *cinnamopterus* it is slightly convex), continued across the clavus. *Membrane* brown, velvety, with a broad iridescent margin along the margin of the cuneus narrowly white. *Prosternum* black; posterior margin of the *mesosternum*, on the sides, silvery-white. *Legs* brown; *coxae* and *fulcra* white or pale yellowish-white; *thighs* brown; 3rd pair darkest; base and lower margin at the apex frequently reddish-brown; *tibiae* ferruginous; *tarsi* white or pale yellowish-white; 3rd joint dark brown.

Abdomen, underneath, black, with a broad silvery-white band extending from the 2nd segment to the posterior margin of the 6th, slanting inwardly in the direction of the apex. Length, $1\frac{3}{4}$ line.

In colour and size, this species mostly resembles *P. clavatus*, but differs from it in the following characters:—the more contracted anterior margin of the elytra, the *continuous* nearly straight lower silvery band on the same, and a simple silvery spot at the inner basal angle of the cuneus, as in *P. cinnamopterus*, from which species it may also be distinguished by the different colouring of the antennæ, elytra, and tarsi.

With us, this is the commonest of the three British species. It occurs in July and August, on oak trees in a hawthorn hedge, as well as in the hedge itself, in the vicinity of the nests of *Formica rufa*, in company with which insect we believe it dwells.

Camaronotus cinnamopterus, Fieb., Doug. and Scott, Brit. Hem., i, 359, 1, is not, as stated by Reuter in his "Revisio critica Capsinarum," part ii, 85, 1, the *Cimex bifasciatus*, Fab., Mantiss., ii, 305, 264. Stål confirms Fieber's view, and refers the insect to the genus *Closterotomus* of this author.

Lee: *September*, 1875.

ON THE LARVA, &c., OF *CATACLYSTA LEMNALIS*.

BY WILLIAM BUCKLER.

On November 10th, 1874, Mr. W. C. Boyd kindly sent me six young larvæ of this species in their cases, and I found no great difficulty in keeping them in thriving condition by placing them in a vessel of water with a supply of *Lemna minor* floating on the top. It gave me much interest and pleasure to watch them from time to time, and I have set down my observations as it occurred to me to note them.

When they first arrived, these larvæ were often protruding from their cases half or more of their bodies, both on the surface of the water and also below it, while apparently examining the surrounding

weed ; often they would ascend a little way on the side of the glass vessel and fix themselves there with only their head downwards and projecting into the water, while the other end of their cases above it on the glass would have a bright silvery air bubble.

Sometimes they would descend beneath the surface of the water, down the side of the glass, for an inch or two, and even more ; and then, while crawling, they often protruded as many as eight segments, showing a line of silvery sparkles along each side in the spiracular region, the other parts of the body appearing blackish.

On the 16th of the month, having noticed that one had remained at the very bottom of the water, hidden entirely in its case, for some time, I removed it to another vessel of water, the better to observe its behaviour : at first it floated on the surface, but after a few minutes came out of the case as far as the fifth segment, and, by crawling, soon managed to arrive at the side of the glass, along which it continued to crawl at the level margin of the water, occasionally turning itself round within its case, and coming partly out at the other end, thus proving the case to be open at both ends, a fact which was not suggested by its appearance. The external figure of the case was of an irregular oval form, nearly half-an-inch in length, and varying in width from two to three lines, the leaves of which it was formed overlapping each other, but in an irregular manner, and so contrived that a leaf or two should hang down and mask the openings at the ends, when the occupant, as was often the case, remained quiet within : the two ends of the case are not quite alike in their fashioning, and the whole thing, when the larva is not seen, very much resembles an accidental accumulation of some of the duckweed, so slight is the eminence which it causes above the general level of the surface.

When the larva reposed just so far within its case as only to show a little of its head, there was the smallest conceivable silvery sparkle lurking at the bases of its antennal papillæ, and also about the mouth ; but when it was in motion with two-thirds of its body beyond its case, this quicksilver-like appearance of air in water was exhibited more extensively along each of its sides as a broad band, and even the bases of its anterior legs were encircled with radiance, and sparkling with each movement ; this luminous appearance changed its position with that of the larva, according to the angle of light in which it was viewed ; sometimes, behind the second segment, the back appeared completely silvered over, and sometimes the belly ; and, at other times, transverse silvery lines marked the segmental divisions.

After watching it some time, I took it in my hand and stripped off the case of duckweed leaf by leaf, leaving the larva naked and perfectly dry; then placing it in a small dry saucer, I found it much less helpless than I at first thought, for, recovering in a few seconds from the surprise of its novel situation, it began to crawl about and up the side of the saucer; I then put in a small quantity of water, and placed the larva on it, when it floated without sinking even its feet, and when touched, slid quite helplessly about;—in fact, I found it now impossible to immerse the larva, for its specific gravity seemed as nothing in comparison with the water.

After figuring the naked larva, I placed it in a glass of water with a little duckweed on the surface, and then it at once began to spin some of the leaves together with its anterior legs, placing and holding them suitably for its purpose; and still it remained all the while perfectly dry, its skin being the very perfection of waterproof texture.

In the course of six minutes, it had roughly constructed a new case, and was almost hidden from view, by this time lying on its back and employed seemingly in finishing the interior.

While out of its case, I found it was three-eighths of an inch long, of slender proportion, thickest in the middle, the anal flap rounded above like a small knob, the colour of the head and second segment black above, and shining, the rest of the body without gloss and of a *sooty velvety blackness*, but a blacker dorsal line could be distinguished; a faint olive tint seemed to show through the sooty surface along the spiracular region under a lens, but even that aid did not enable me at this early stage to see the spiracles.

At the approach of winter, all the larvæ ceased to feed on the duckweed, and shut themselves up in their cases for hibernation from early in December to the beginning of March, 1875, when, during the occurrence of a few mild days, they began to move about and protrude their front segments, but soon retired again until the middle of April; thenceforward they frequently came partly out, and appeared to be feeding well, and, by May 5th, their cases were enlarged with additions from the fresh weed.

On the 10th of May, I saw, with some anxiety, a larva out of its case, apparently dead at the bottom of the water; when taken out for examination, it proved to be still alive, but in hopeless plight, infested with extremely minute, slender, whitish, semi-translucent, parasitic worms, which, on emerging, coiled and wriggled round their dying victim. Three other larvæ succumbed to these parasites soon afterwards.

On turning over one of the two remaining cases on May 12th, I was surprised to see the larva walk immediately out of it as though in alarm, and after crawling over the duckweed on the surface of the water, partly ascend the side of the glass; it seemed to be full-grown, so I placed it in a shallow saucer of water, and secured a couple of figures and the following description.

Length just five-eighths of an inch, or a little more when stretched out to the utmost, in which position it appeared nearly uniform in size throughout, but its more usual appearance while at rest or crawling was to be thickest in the middle of the body, the first five segments tapering towards the head, which is partly retractile into the second segment; the second segment is longer than the usual proportion, while the third and fourth are shorter than the others; the thickest segments are the sixth to the tenth; from the latter the figure tapers again to the thirteenth, which is the smallest segment, its former knob not present; the divisions and sub-divisions all deeply defined, the anal tip rounded and but little sloped; the anterior legs very well developed; the ventral ones full and fleshy, but with small feet; the anal pair rather small; the back, viewed sideways, a little arched, sloping off towards the head, and more to the anal extremity.

The colour of the head is pale olive-brown, darkest at the mouth, and shining; the very lustrous black plate on the second segment is relieved behind by a pale margin of olive-greenish; from thence the whole surface of the body is of a deep sooty-olive blackness, soft and velvety, with the slight exception of the anal tip being a little browner than the rest, and rather less velvety; a black dorsal stripe can just be discerned; the anterior legs pale olive; the puffed spiracular region is a little puckered, and the small circular blackish spiracles raised in the least degree above the surrounding surface, and slightly glistening; a few fine soft hairs from the usual situations just visible.

As before, this larva, when supplied with a little duckweed, soon formed for itself a new case; on examining the case of the other survivor, I found it had already become a pupa; I put them in the same vessel together, and, on May 15th, I found the larva was joining its case to that which contained the pupa, thus making together a much bigger object floating on the water; at intervals more weed was added by the larva until the 17th, when it became quiescent, and then the whole mass presented an oval form of about the bulk of a house-sparrow's egg.

Not expecting an imago quite so early, I left the water uncovered

until the 26th of May, when I noticed a diminution in size of the case, and knew I had lost the first moth; but I secured the second moth, a fine female specimen which appeared on June the 5th.

On opening the deserted remains of the cases, I found that of the first moth fallen to decay, while the one just vacated was oval within, five-eighths of an inch in length, thickly and smoothly lined with whitish silk; the old blackish cast skin of the larva, and the broken pupa skin, remaining in it; this pupa skin was a little more than three-eighths of an inch in length, with a large development of the wing-, antenna-, and leg-cases, the latter projecting a little free from the body, which was smooth and shining, the head and thorax rounded off, the abdominal tip rather blunt, and but little produced beyond the last ring, and having on each side a small angular projection; the circular flat button-like spiracles very slightly raised above the surface: the colour was a warm brown, and shining.

Emsworth: *August 16th*, 1875.

DESCRIPTION OF A NEW SPECIES OF *MYRINA* FROM W. AFRICA.

BY W. C. HEWITSON, F.L.S.

A small collection of butterflies brought from the Cameroons and very liberally intrusted to my care by Mr. G. B. Medley, though not rich in rare things, contains a very beautiful new species of *Myrina*, which I characterize as follows:—

MYRINA GENTUA, *sp. n.*

Upper-side: ultramarine blue. Anterior wing with the costal and outer margins, and an unusually large central discal spot, dark brown. Posterior wing with one tail; the costal margin brown, the outer margin dentated, black, narrow, the fringe white.

Under-side: white, with the outer margins broadly brown, traversed inwardly, where it joins the white by a rufous-brown band bordered on both sides with dark brown. Posterior wing with a black spot at the base of the tail, bordered broadly with orange; the lobe black crowned with blue, a black spot near it irrorated with blue; two lunular brown spots towards the apex bordered with white, the outer margin black bordered inwardly with white.

Exp. $1\frac{3}{10}$ inch.

Hab. Cameroons, West Africa.

Oatlands, Weybridge:

September, 1875.

Note on Eros minutus.—Having a few hours' leisure in the intervals of the business of the British Association, Mr. Bates, Mr. McLachlan, and I were duly escorted by a friendly band of Bristolian experts to Leigh Woods, their happy hunting ground, where, from the luxuriant growth of many kinds of trees, the age of most of the timber, and the evident traces of insect life, it is clear that collecting in the early summer could not fail to be very profitable. The time of year, however, being at the time of our visit unpropitious, and our opportunity very small, nothing of any consequence was found, except, perhaps, *Orchesia undulata*, of which erratic skipper I found five or six specimens in fungoid growth under felled oak bark, where *Cerylon*, *Leptusa*, &c., of course occurred. In looking for such things, I was somewhat surprised to find, on three or four occasions, very fine specimens of *Amphipyra pyramidea*, packed in spaces that must apparently have somewhat pinched them for room. The only species really worth recording, that fell to our lot, was *Eros minutus*—that "little *Lycus*" whilom found here by Senor Edwyn Reed of Chile, whose secret appears to have crossed the seas with him, and of which sporadic examples have occurred in various parts of the south, chiefly by sweeping under fir trees. Of this, we "happened on" a brood, a straggler of which caught the attention of my Neuropterous colleague, who, not forgetful of old Rannoch experiences with the larger species, immediately called my attention to it. The insect was living under practically the same conditions as its Scotch ally, in the very rotten and almost powdery remains of a large felled stump, on which *Scaphidium*, not often seen by cockneys, alternately reared and shammed death. This stump was so old, that no fibre or bark remained to guess as to what tree it had once belonged; it was too large for fir,—and, from the surrounding growth, was probably oak. Forty-seven specimens fell to us; and, as only the odd seven were females, the species is clearly one of the *Polyandria*. These females were found in copula, the balance of males rambling about in search of partners; most of them shammed death on being touched, and one flew briskly. The insect varies much in size, from $2\frac{1}{2}$ lines to 4; and the female is readily distinguishable by her much stouter build, and much shorter and thicker antennæ. As usual in insects of soft integuments, some amount of distortion or malformation occurred in the number taken, chiefly in the antennæ; in one example, those organs are apparently female on the left and male on the right. In another, a ♂, the right front tibia is deeply bifurcate at the apex, the upper furcation bearing a normal tarsus, and the lower having a tarsus of which the three basal joints are normal, and the fourth is unduly dilated, two perfectly formed claw-joints springing from near the centre of its comparatively monstrous lobes.—E. C. RYE, Parkfield, Putney, S.W.: September, 1875.

Note on an unrecorded habit of Cryptophagus populi.—During a recent ramble of Mr. Marsh and myself to Farnham, Surrey, we chanced to pass a high cutting of soft sandstone, extending for some little distance along one side of the road, the perpendicular sides of which proved to be riddled with thousands of burrows of *Colletes Daviesana*, containing abundance of the insect in all its stages; and, on looking closely round the holes of the *Colletes*, and at the base of the cutting, we found a *Cryptophagus* in abundance. This, on examination, turned out to be the rare *C. populi*, a species hitherto found in fungus and rotten wood.

Judging from the specimens obtained, it appears to me to be one of our most

variable species, the difference in size between some of the examples being considerable (1½ lin. to 1¾ lin.), and the colour being (in most cases) entirely ferruginous (*grane* Ktz.), or with an ill-defined elytral dark spot, or with entirely dark elytra: the died form, I noticed, was rare. Examples of the *Cryptophagus* were also to be obtainli, by tapping the holes of the *Colletes*, so I have no doubt the beetle lives in tsh burrows. Various species of *Cryptophagus* have, I believe, been found in bees' nes, k but I do not think *C. populi* has been so recorded.—G. C. CHAMPION, 274, Walwor of Road, London, S.E.: September 8th, 1875.

Notes on Coleoptera in Cornwall, &c.—During the stay of H. M. S. "Swiftsure" at Plymouth, since April last, I have been enabled (though by no means as fully as I could have wished) to investigate the Coleopterous Fauna of the locality: m, operations being, however, almost entirely confined to the Cornish side of the Tamar. As I leave England in a day or two, once more for the Mediterranean, I have drawi, up a few hasty notes on the more important of my captures, which may be interesting as shewing, from a Coleopterist's point of view, the productiveness of this (I believe comparatively unworked district.

By far the best collecting-ground within reach I found to be Whitsand Bay, k distant about four miles from Devonport. Here, about a quarter of a mile from For, Tregantle, is a sort of "chine" in the slate cliffs, the western side of which, as wel, as the lower part of the cliffs themselves, for a few hundred yards, is covered with an accumulation of sand blown by the winter gales from the beach below. A vigorous growth of the ordinary coast sand-loving plants (*Glaucium*, *Erodium*, *Eryngium*, *Ononis*, &c. &c.) occurs on this spot, while the cliffs themselves are clothed with a profusion of "samphire" (*Crithmum maritimum*), wild carrot (*Daucus carota*), and many other wild flowers and plants, some of great interest to the Botanist. The sandy spot was, however, almost entirely the scene of my operations. Stimulated by the capture here of *Psammodius porricollis*, Ill., in June, I afterwards visited the locality almost every week: but although I was often tantalized by finding fragments of the beetle on the sand, it was not until quite the middle of August that I succeeded in taking it in small numbers beneath the surface of the sand, under small stones, as well as at the roots of stunted herbage.

Other beetles which occurred in this prolific spot comprised *Harpalus tenebrosus*, which was common under stones and herbage, but, unfortunately, not recognising it for some time, I did not take so many as I might otherwise have done: *Phytosus ballieus* and *Oxytelus maritimus*, under sea-weed, &c.: *Phaleria cadaverina*, in profusion in the sand under sea-weed, the specimens nearly all having the dark markings on the elytra very strongly developed, forming some striking varieties: *Otiorhynchus rugifrons*, common under *Ononis*: *Cænopsis Waltoni*: *Sitones Waterhousii*, not rare on *Lotus*: *Orthochaetes*, *Molytes coronatus*, *Hypera plantaginis* and *suspiciosus*, under herbage: *Tychius lineatulus*, common on *Anthyllis*: *Ceuthorhynchideus terminatus*, rarely, and *C. Dawsoni*, in great abundance at roots of *Plantago lanceolata*; *Apion confluens*, *Hookeri*, *Gyllenhali*, &c., under *Ononis*: *A. atomarium*, under *Thymus*: *Chrysomela hermoptera*, common beneath stones: and very many commoner species. The Hemiptera too were well represented:—*Therapha hyoscyami* (running and flying actively in the hot sun, and partial to viscid plants, such as *Erodium*, *Ononis*, &c.): *Dieuches luscus*: *Henestaris laticeps* (common), and *Salda orthochila*, among others, occurring to me on more than one occasion.

General sweeping in lanes, &c., was not particularly productive. The best things got by this method were *Calodera umbrosa*, *Stenus plantaris*, *Cyrtusa paucilla*, *Cuscuta pedicularius*, L. (locally common on *Spiraea ulmaria*), *Meligethes distinctus* (common on *Teucrium*), *Sitones cambricus*, *Gymnetron beccabungæ*, var. *veronica*, *Antherophagus setosus*, *Cissophagus hederæ*, *Hylastes obscurus*, *Lamprosoma concolor* (common), *Cryptocephalus pusillus* (fine varieties) and *moræi*, *Phratora cavifrons*, &c., &c. By sweeping on the top of the Whitsand Cliffs, *Antherophagus silaceus* and *Salpingus ater* occurred singly, among others; and of the latter insect, I found a specimen walking on the side of a building in Keyham Dockyard, where *Ischnomera lanura* was abundant in early summer.

Mount Edgecumbe Park yielded (besides the traditional *Mesites Tardii*) *Cryptophagus ruficornis* (1) and *Cis alni* under oak bark.—JAMES J. WALKER, R.N., F.R.I. M. S. "Swiftsure," Plymouth: August 21st, 1875.

Sphindus dubius, &c., at Chatham.—Being at home in July on leave of absence, I made a day's excursion to one of my favourite collecting-grounds near Chatham. I first went to the old fallen beech tree I have previously mentioned as being so productive (E. M. M., vol. x, p. 252), and found it still unexhausted. In about an hour I succeeded in finding, in small mealy fungi growing on the rotten wood, two or three *Sphindus dubius* in company with a few *Agathidium rotundatum*: and, in other small fungi, *Bolitochara lucida*, *Liodes orbicularis*, and *Aspidophorus* occurred, all three in some numbers, with one or two *Lathridius testaceus*. By sweeping under oak trees I got *Dasytes oculatus* (several), *Abdera 4-fasciata* (1), *Ceuthorrhynchideus versicolor* (in abundance), *Hylesinus oleiperda*, &c., &c.—ID.

A second contribution to the list of Aculeate Hymenoptera of North Wales.—

Two years ago I published a list of Aculeate *Hymenoptera* captured by myself in the vicinity of Bangor, and I now give the result of captures made during a month's residence at Barmouth. Some of the species have already been recorded from that locality, captured by the late Mr. Dale, but only two or three that I can call to mind.

According to my observation, North Wales is by no means a locality rich in Aculeata, although the large tract of sand-hills at Barmouth would lead a Hymenopterist to expect great results from so apparently promising a field; I confidently expected a far more valuable collection. One or two rare captures will be observed in the list, but of these only one example, or at most three specimens, rewarded very diligent search; these were made during the last week in July, being the first of the four I spent at Barmouth. The weather, during my sojourn, was exceptionally fine for North Wales; every lane, valley, and mountain-side was bright with a great variety of flowers, but insects of all kinds were rare; similar attractions in Kent, Surrey, or Hampshire, would have produced an endless variety of insect life.

The most important capture made is no doubt *Astata stigma*; this species was not known as British before 1845, when I captured a female at Weybridge, in the month of August; ten years elapsed before it was again taken, when I found two females during the first week of September at Deal. Mr. Edward Saunders took one of the same sex last year at Littlehampton, and three have occurred to me at Barmouth. The male has not been captured, to my knowledge, in Britain; it is readily distinguished from the other sex, which in general appearance it closely

resembles, by a white curved spot immediately below the anterior sterna. This insect so very closely resembles *Tachytes pompiliformis*, that I always capture the latter insect and satisfy myself that I am doing so; by adopting this plan I detected *Astata* at Barmouth; the latter is at once known by its having three distinct ocelli, and the mesothorax highly polished above; these characteristics serve to distinguish it on capture; the venation of the wing is better examined in the study. I think it not unlikely that it may be mixed with specimens of *Tachytes* in some stores of *Hymenoptera*.

A single specimen of the extremely rare *Agania bifasciata* was found; it is some years since I last took it; it is in few collections.

Of *Apidæ* only one rare species occurred, *Andrena nigriceps*; two females, and, for the first time, what I believe to be its male.

Dasypoda hirta I found on the sand-hills, but not very numerous. Of some species only males were taken, therefore the locality would yield the other sex during September.

Nysson dimidiatus, always a rare species to me, occurred, but I scarcely think the sand-hills could be its proper habitat, having usually found it in cultivated situations; there are four species of the genus found in Britain, only one of which I have found plentifully, *Nysson spinosus*; it frequents the wood-spurge, and burrows in the ground, but I have never been fortunate in detecting it with its prey.

Some of the commoner species of ants are more abundant at Barmouth than I have elsewhere observed them; on the mountain sides, as well as in the valleys, a nest is found under almost every stone that is as large as a man's open hand. On one favourable evening, tens of thousands, if not of millions, were on the wing; they dropped in innumerable numbers everywhere; the shore was alive with their hosts. The species appeared to be three in number, *Formica nigra*, *flava*, and *umbrata*. *Myrmicidæ* were equally numerous under stones, &c., but I did not observe any great flight of them; they must at times be on the wing by myriads.

The following is a list of the species observed; those marked with the prefix * were abundant.

Fam. FORMICIDÆ: *Formica* **rufa*, **cunicularia*, **fusca*, **nigra*, **umbrata*, **flava*.
 Fam. MYRMICIDÆ: *Myrmica* **scabrinodis*, **ruuginodis*, *lævinodis*. Fam. POMPILIDÆ: *Pompilus* **plumbeus*, **gibbus*; *Priocnemis hyalinatus*, *exaltatus*; *Ceropales* **maculata*.
 Fam. SPHEGIDÆ: *Ammophila viatica*. Fam. LARRIDÆ: *Tachytes* **pompiliformis*, *Astata stigma*. Fam. NYSSONIDÆ: *Nysson dimidiatus*, *Harpactus tumidus*; *Mellinus* **arvensis*. Fam. CRABRONIDÆ: *Crabro* **Wesmaeli*, *brevis*, *cribrarius*; *Oxybelus* **uniglumis*, *mucronatus*; *Diodontus tristis*, *Cemonus lethifer*, *Mimesa* **unicolor*. Fam. PHILANTHIDÆ: *Cerceris* **arenaria*. Fam. EUMENIDÆ: *Odynerus parietum*, *antilope*.
 Fam. VESPIDÆ: *Vespa* **vulgaris*, *germanica*. Fam. ANDRENIDÆ: *Colletes succincta*, **jodiens*; *Prosopis hyalinata*, *Halictus rubicundus*, **leucozonius*, *albipes*, *villosulus*; *Andrena nigriceps*, *pubescens*, *albicus*; *Dasypoda hirtipes*. Fam. CUCULINIDÆ: *Cælioxys simplex*, *Epeolus variegatus*. Fam. DASYGASTRIDÆ: *Megachile maritima*.
 Fam. BOMBIDÆ: *Bombus* **muscorum*, **sylvarum*, **hortorum*, *Scrimshirani*, **lucorum*, **lapidarius*. Fam. CHEYSIDIDÆ: *Chrysis ignita*, *Hedychrum* **ardens*.—FREDK. SMITH, 27, Richmond Crescent, Islington: September, 1875.

Note on the larva of Abia sericea, Linn., Htg.—The life-history of this common species has not been hitherto described, and I am therefore glad at being able to give a description of the larva.

When full-fed, the head of the larva is rather small compared with the size of the 2nd segment; the colour is black, with the parts surrounding the mouth somewhat paler; and the skin is covered with short whitish hairs. The upper half of the body is dark greyish-slate, and marked as follows: in the centre of the back there is a row of twelve black marks; joined to these outwardly there is a row of twelve orange marks; and joined to these again, but placed more towards the end of the body, is a row of larger black marks; and between each pair of the last mentioned black marks is a small black dot. The lower half of the sides is white. The feet and claspers are white; and over each are two black marks, one above the other. The skin is rather downy, and in furrows; and on each segment are two rows of white tubercles. The spiracles are brownish, and the last segment is paler than the rest of the body.

When young the markings are scarcely, if at all, visible. The egg-laying I have not been able to observe. The food-plant is *Scabiosa succisa*, the leaves of which the larvæ devour at the edges; and whenever the creatures are touched they roll themselves up into a ball and drop to the ground, ejecting at the same time a fluid from apertures in the sides. This fluid is of the same nature as that given out by *Trichiosoma* and *Cimex*, but the liquid of the *Abia* seems to me to have a bitterer taste. When feeding, the head is usually pressed close to the feet.

The larvæ are found from July to October, and spin a large double egg-shaped cocoon in the earth, and change to pupæ in May and June.—P. CAMERON, Jun., Glasgow: 16th September, 1875.

Lycœna Alexis hermaphrodite.—I have much pleasure in sending you notice of the capture, by myself, of a hermaphrodite specimen of the common blue (*Polyommatus Alexis*). The right pair of wings are male, and left pair female, the difference being equally well marked on both sides. May I ask if this is a rare occurrence? The specimen is now in the cabinet of Murray Aston, Esq., of Hatchgate, Horley. It was captured in a lane near Horley on the 1st of this month. May I also draw your attention to the great abundance of the feathered gothic moth (*Heliophobus popularis*), Mr. Aston having taken nearly thirty specimens, during the last two weeks of August, at a lamp in the hall of his residence. Can you inform me what is the food-plant of the larva of this handsome moth?—T. MATTHEWS, Station Road, Horley: September 5th, 1875.

[About half-a-dozen instances of hermaphroditism in *L. Alexis* have been recorded. The larva of *H. popularis* feeds on various grasses.—EDS.].

Sphinx convolvuli at Emsworth.—On the 18th ultimo, a little boy brought to me, screwed up in a piece of paper, a very fine living *Sphinx convolvuli*, ♀, which had been taken in a garden. The moth was kept alive in the hope of obtaining eggs. I lavished a lot of flowers for her sustenance each evening, to induce her to lay on *Convolvulus arvensis*, which was supplied growing in a pot, but she died on the eighth day without laying eggs, and a post-mortem examination proved that she had none to lay.—W. BUCKLER, Emsworth: 14th September, 1875.

Sphinx convolvuli at Kingussie, Inverness-shire.—Mr. William Duck has sent to the British Museum a male specimen of *Sphinx convolvuli* captured at Kingussie, N. B. The specimen is quite spoilt, but I thought the locality might be worth noting. I see Edinburgh given in the 'Manual,' but as I know nothing of the authority, I send you an undoubted one.—FREDK. SMITH, British Museum: 2nd September, 1875.

[In the 'Scottish Naturalist,' vol. i, p. 118, *S. convolvuli* is stated by Mr. Traill to have been taken at Harray, Orkney. The species is not included in Zetterstedt's 'Insecta Lapponica,' nor (as a real Finland insect) in Tengström's 'Catalogus Lepidopterorum Faunæ Fennicæ.'—EDS.].

On collecting and rearing the Psychidæ.—The rearing of the larvæ of the *Psychidæ*, whatever certain authors may say, is very simple and easy; but certain things must be specially attended to, and if they are not observed to the letter, there will be no development of the perfect insect.

The first point (and this I think is opposed to the practice of collectors) is to collect the cases as soon as possible after the winter is well set in, in order to avoid Ichneumons, the sworn enemies of Lepidopterists; and because, as I have proved, there is a much more numerous development of the perfect insects when the cases are taken before they have been fixed, probably because the larvæ cannot endure disturbance at the time they are changing to pupæ, or even the pupæ, for I have often found that a pupa fallen from its case is a pupa lost. I do not hesitate to nurse these industrious larvæ for three or four months or more previous to their development, and I never had cause to regret this procedure.

The cases of the *Psychidæ* must be put in boxes having a cover of wire gauze, the meshes of which should be proportionate to the size of the larvæ. In the boxes should be put a layer of peat-earth, and then a layer of moss, in order, as much as possible, to imitate nature, and to preserve fresh the plants placed therein. Through the moss must be placed the food-plants, which must be kept fresh and abundant until the larva has finally fixed its case; this is not very difficult, as a large number are polyphagous, and are content with *Poa annua*, or other low-growing plants, common everywhere. It will only be necessary to place the food-plants in the earth, and to water them from time to time. The boxes should always be in the open air, and with an eastern aspect. The rearer of the *Psychidæ* should be convinced that the rays of the sun are never too ardent for them, and that they are indispensable both for the larvæ and pupæ. In order to hasten the development, the boxes may be taken indoors during the night, but they must not fail to be put out again the first thing in the morning.

I regard also, as a condition essential to success, that the *Psychidæ* should not be disturbed, nor even touched, if it be possible to avoid it. When they are finally fixed (I say finally, because as they turn round in their case this is an important matter to them) they expend much vital power, and there is often not sufficient left for their transformation; then the larvæ are compelled to return and feed again. It is therefore highly necessary to watch them, and not to leave them without food until it is certain they have turned to pupæ. When at length no larvæ move, the cases which are not fixed should be suspended from the part which was originally the head-end by a pin fixed in the side of the box.

The feeding up being ended, there remains one point not less important, that is to watch for the appearance of the perfect insects, in default of which the specimens will be spoiled, for the ardent males often scarcely wait to be fully developed before they struggle and hunt after the females, which have sometimes not even seen the light. The moths appear between eight and ten o'clock in the morning; there are some species, however, which do not appear so soon, others which come out in the morning or at night, and one (*Epichnopteryx helix*) only at the dusk of the evening.—GEORGES ROUAST. (Translated from the "Feuille des Jeunes Naturalistes," September, 1875).

Larentia cæsiata and *ruficinctata* (Gn.).—Previous enquiries for information on points which I could not myself work out satisfactorily, having generally proved so unfruitful, I now wish to express my thanks to those entomologists who have kindly answered my appeal at page 7 of this volume, and ask for a little space to supplement and correct my notes on *L. ruficinctata* and *cæsiata*.

When I called *ruficinctata* 'double-brooded,' I had not obtained a second brood myself, but was under the impression that this had been effected in Scotland as far north as the localities where the moth is taken; further enquiry has, however, elicited that the information on which I relied was not well founded; and although Mrs. Hutchinson, at Leominster, has with ease obtained, from moths bred in the month of May, eggs that resulted in a second flight of moths in August, I think it has been made quite plain that the species cannot be properly called double-brooded in its natural condition.

Dr. Chapman tells me that when he lived in Scotland he sometimes bred and captured stray specimens forced out by exceptional circumstances in autumn, but these were small in size, and with subdiaphanous wings,—weakly creatures who could not continue the race, and therefore not in fairness to be taken into account: and he agrees with Dr. Buchanan White that the food of this species is *Saxifraga aizoides*.

Cæsiata also has been shown to have but one flight in the year, appearing earlier in England than in Scotland. As to its food, the insect must be called polyphagous, having been found in some numbers feeding on *S. aizoides*, while the larvæ I have received from the north of England have always seemed to prefer whortleberry. Speaking from the experience of others as well as myself, I think it would be found very difficult to rear the larva on ling alone, and that some juicy food would be needed in addition.

Thanks to the kindness of Mr. C. Fenn in forwarding me eggs, I can now supply an omission in my paper. The egg is somewhat more brick-shaped than that of *ruficinctata*, being oblong, with the edges and one end rounded; the shell glossy, with the reticulation so slightly raised, and the enclosed spaces so little sunk, that it might be called embossed rather than reticulated: the colour, five or six days before the hatching of the larva, warm ochreous, afterwards pale dusky. The young larva is pale drab, without lines, the dorsal region having a darker tinge than the rest of the body, with a still darker edging: the head olive brown, rather glossy; the usual dots hardly seen, the bristles simple and extremely short.—JOHN HELLINS, Exeter: September 8th, 1875.

Habit of larva of Cidaria sagittata.—I find a doubt is expressed in the pages of

the Entomologist's Monthly Magazine (by Mr. C. Barrett, vol. vii, page 278) as to the correctness of the observation, originally made by Mr. A. Fryer, of Chatteris, on the habit of the larvæ of *Ciduria sagittata* gnawing the stems of their food-plant and feeding on the withered leaves. I have much pleasure in sending two pieces of *Thalictrum flavum* found by myself on the 18th ultimo near Chatteris, and which will, I think, bear out the correctness of Mr. Fryer's statement. I took one larva off the leaf which is partially eaten, and one (at rest?) on the stalk of the other specimen, just below the place bitten. I might add I noticed several plants which had been served in the same manner.—WM. SAUNDERS, 1, Ashley Villas, Borough-bury, Peterborough: *September 13th, 1875.*

[The leaves received with their stems partially bitten fully confirm Mr. Saunders' observations.—Eds.].

Spilodes palealis, &c., in Norfolk.—On the 20th of August I took two specimens of this insect, one in my garden at Thetford, and the other in Croxton Parish, three miles distant. Mr. Barrett, in his able paper on Norfolk, says no recent captures have been recorded. *Colias Edusa* and *Hyale* seem to have changed seasons, as I took, in the same locality, *Edusa* on the 24th of June, and *Hyale* at the end of August. For *Pterophorus latus*, I was chiefly indebted to the keen sight of a kind friend, more accustomed to its rapid flight.—BATTERSHELL GILL, 9, Cambridge Terrace, Regent's Park: *13th September, 1875.*

Spilodes palealis on Barton Moss.—I had the pleasure of capturing a female of the above species on the 21st August, flying amongst the heath, and about seventy yards from the London and North-Western Railway, in the presence of Mr. Robert Kay, of Bury. The insect had been very likely carried on some passing train from some unknown locality nearer than Folkestone.—JOSEPH CHAPPELL, 1, Naylar Street, Hulme, Manchester: *September, 1875.*

Capture of Crambus latistrius, Haw., at Addington.—On the 19th of August, at the foot of the Addington Hills, next Shirley, I put up among the heather a male of *Crambus latistrius*, but having only a large sweeping-net, I was unable to use it for capture, so there ensued a veritable *chasse du papillon*, and eventually, when we were both tired of running and flying, respectively, I took it from a sprig of heather with a pill-box.—J. W. DOUGLAS, Lee: *13th September, 1875.*

Psoricoptera gibbosella near Plymouth.—On the 27th ultimo I found this curious little moth in Bickleigh Vale, to the north of Plymouth. Probably it had not been recorded previously west of Bristol, but it has been no rarity in collections since Mr. Barrett 'blew' it off tree-trunks at Haslemere. Provided it does not rain (!), I know of no more charming spot in England, for a naturalist of any kind (or even for the mere tourist), than Bickleigh Vale.—R. McLACHLAN, Lewisham: *September 11th, 1875.*

Note on the odour emitted by Hemiptera.—Is it possible that a bug can develop an ether which, under certain conditions, will cause anæsthesia to itself? Last week

I collected, on some nettles, four examples of *Capsus capillaris* and two *Heterotoma*, all of which I put into a small tube 50 mill. long, and 8 mill. diameter; some time after not one of them moved, although they did not appear to be dead. The odour exhaled appeared to me to be the same as that of the compound ethers known and employed in commerce under the name of fruit-essences; and, corroborating this impression by observing the complete insensibility of the insects, I considered whether they themselves, after having discharged their (supposed) ethereal emanations within a restricted and enclosed space, had not succumbed to their anæsthetic action; actually when they had been for some minutes under the influence of a fresh atmosphere, which was charged with a little ammonia, the *Capsidæ* came back to life. The experiment was then tried under a small bell-glass in which I had put a drop of acetic ether to be volatilized, and I obtained a result identical with the former, namely, the same insensibility, the same appearance of anæsthesia, and the same time for recovery.

It seems to me, after these facts, that it may be possible to establish that the emanation from certain *Hemiptera* is a true ether, having the power of affecting even the producers themselves, but I will not venture to assert this, and shall be glad to learn the opinion of such of my colleagues who are more capable than I am to decide the question.—É. PIERRET. (Translated from the "Compte-Rendu" of the Société Entomologique de Belgique, 7th August, 1875).

Loxops coccineus in September.—Whilst beating for species of *Psylla* and *Trioza* on the 2nd inst., I took this insect in as fine condition as if it had just emerged from the pupa state. It was, as usual, amongst the bunches of seeds of the ash (*Fraxinus excelsior*), and not uncommon.—JOHN SCOTT, Lee: 7th September, 1875.

Note on the larva of Mesovelie furcata.—In the "Notiser ur Sällskapetets pro Fauna et Flora Fennica Förhandlingar," xi, 303, 169 (1870), Dr. John Sahlberg described the larva of a species of *Hemiptera* taken in Karelia in 1869 on the leaves of the yellow water-lily (*Nuphar lutea*), of which larva the imago was unknown to him, and he referred it to a new unnamed genus intermediate between *Hydroessa* and *Velia*. Subsequently he had the goodness to send me an example under the provisional name of *Mesovelie Parra*, but now, having seen recently captured examples of the larvæ of *Mesovelie furcata*, Muls., taken with the imago, I am able to say that they are specifically identical. Dr. Sahlberg was the first to see this species in the larva-form, and he having no means of knowing that it was the larva of *M. furcata*, and it being very unlike the imago, not unnaturally assumed that it was a new species, but his sagacity is shown by his correct reference of it to the genus *Mesovelie*. The habitat is not confined to the water-lily, for the original French example was taken among the *débris* of a marsh, and the English ones among rushes growing in water.—J. W. DOUGLAS, Lee: August 29th, 1875.

Capture of Ulopa decussata and U. trivia, Germ.—On the 21st August, at Riddlesdown, where in April last I casually found a single example of *Ulopa decussata* (vide ante p. 15), I spent some hours in searching for more at the roots of the varied herbage that grows thickly round the juniper bushes, but all endeavours to find another one were fruitless. But, half-an-hour before I had to leave, I saw

some young plants of *Galium verum* growing somewhat isolated on a piece of ground from which the turf had been removed, and at the roots of these I found not only *U. decussata*, but also *U. trivialis*—five of the former and four of the latter. This then is the secret of their life, and without knowledge of it, patience, and knowing what to look for, the chance of getting the creatures is very slight indeed. It is only by the keenest looking that they can be seen, for they lie without motion, and do not jump when touched. All the examples of *U. decussata* are ♀, and of *U. trivialis* are ♂, and they are doubtless the sexes of one species, as Fieber has put them in his "Katalog," but under the new specific name of *Germari*, for which I do not see the necessity. Germar, in his "Magazin der Entomologie," iv, 56, 3, has described another species, *U. lugens*, which he says was taken with *U. decussata*, and although Fieber cites it as distinct, this may be because he did not know it, and it is to me a question whether or not it is any more than a form of *decussata*.—J. W. DOUGLAS, Lee: 25th August, 1875.

REVISION OF THE LEPIDOPTEROUS GENUS *EUSEMIA*, WITH DESCRIPTIONS OF NEW SPECIES.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

From the date of the publication of Walker's Museum Catalogue to the appearance of Dr. Boisduval's Monograph of the *Agaristidæ* hardly anything had been done towards describing the beautiful and numerous new species of this genus.

The above-mentioned paper, however, professed to add five new species, whilst it overlooked nine, previously recorded by Walker and Moore; the errors of this "Monograph" have, however, been already pointed out by Mr. Kirby (Cist. Ent., pp. 343–347) and by myself (Ann. and Mag. Nat. Hist., s. 4, vol. 15, pp. 135–144), whilst at the same time, I published eight descriptions of new forms. It therefore now only remains to extricate the species from the confusion into which they have got, which can be best done by giving a complete list of them.

Genus *EUSEMIA*, Dalman.

1.—*E. VICTRIX* GROUP.

1. *EUSEMIA SILHETENSIS*.

Eusemia silhetensis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 139, n. 1 (1875).

Silhet (*Doubleday and Argent*).

Type, B. M.

2. *EUSEMIA TYRIANTHINA*, n. sp.

Wings above blue-black; primaries with two steel-blue spots at the base, and one or two at the end of the cell; two large creamy yellowish spots, placed obliquely

just before the middle of the wing, one within the cell and the other upon the interno-median area; secondaries shot with purple, with a rather wide steel-blue border and black fringe; body as in *E. victrix*; wings below nearly as above, but the creamy spots of primaries united, and the steel-blue spots absent.

Expanse of wings, 3" 1'''.

N. India.

Type, Coll. F. Moore.

3. *EUSEMIA VICTRIX*.

Eusemia victrix, Westwood, Cab. Orient. Ent., pl. 33, fig. 3 (1847).

Nepal (*Wright*).

B. M.

4. *EUSEMIA ORIENTALIS*.

Eusemia orientalis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 139, n. 2 (1875).

Mussooree (*Leadbeater*).

Type, B. M.

5. *EUSEMIA NIGRIPENNIS*.

Eusemia nigripennis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 3 (1875).

Ceylon (*Templeton*).

Type, B. M.

2.—*E. ADULATRIX* GROUP.

6. *EUSEMIA BELLATRIX*.

Eusemia bellatrix, Westwood, Cab. Orient. Ent., pl. 33, fig. 2 (1847).

N. India, N. Bengal, Moulmein.

B. M.

7. *EUSEMIA ADULATRIX*.

Eusemia adulatrix, Kollar, in Hügel's Kaschmir, pl. xx, fig. 1 (1848).

N. India (*Strachey*), Nepal.

B. M.

8. *EUSEMIA SECTINOTIS*, *n. sp.*

Nearly allied to the preceding species, but deeper in colouring, with the yellow band separated into two large yellow spots; the lower postcellular bifid yellow spot smaller, and the white sub-apical spots rather larger.

Expanse of wings, 3".

E. India and N. India.

Type, B. M.

9. *EUSEMIA CONTRACTA*, *n. sp.*

Smaller than the three preceding species, all the yellow and white spots smaller; the yellow band of primaries united, but strongly incised on each side in the centre; the lower postcellular bifid spot reduced to a mere dot, or pair of dots; the spot at anal angle of secondaries much larger and yellowish instead of reddish-orange; the bands on abdomen bright orange, not red.

Expanse of wings, 2" 6-8'''.

India, B. M.; S. India (*Ward*).

Coll. F. Moore.

10. *EUSEMIA SIMPLEX*, *n. sp.*

Differs from the four preceding species in having the yellow band of primaries narrow and parallel; no postmedian yellow spots; the white discal spots somewhat narrow and elongated; anal spot of secondaries and bands on body golden-orange.

Expanse of wings, 2" 7'''.

Canara (*Ward*).

Type, Coll. F. Moore.

This is decidedly more distinct than the four preceding, all of which, however, are doubtless locally constant, and must, therefore, rank as species.

11. *EUSEMIA AFFLICTA*, *n. sp.*

Allied to *E. adalatrix*, &c., but with the yellow band of primaries more oblique, and forming an unbroken oblong patch, nearly equal in width from end to end; lower bifid spot rather small; anal spot of secondaries large, golden-orange; bands on posterior segments of abdomen golden-orange.

Expanse of wings, ? ♂, 2" 8'''; ♀, 2" 7'''.

♂? Matheran, Bombay (*Dr. Leith*), ♀ Bombay.

Type, Coll. F. Moore.

The insect, which appears to me to be a male with the anal valves closed, is marked as a ♀; it, however, has the broad thorax characteristic of a male insect, and is brighter in colouring than the other example (an undoubted female).

3.—*E. LECTRIX* GROUP.12. *EUSEMIA LECTRIX*.

Phalæna Noctua lectrix, Linnæus, Mus. Lud. Ulr., p. 389; Cramer, Pap. Exot., ii, p. 146; pl. 192, fig. c (1779).

China.

Four examples, B. M.

13. *EUSEMIA MACULATRIX*.

Eusemia maculatrix, Westwood, Cab. Orient. Ent., p. 67, pl. 33, fig. 1 (1847).

Silhet.

Two examples, B. M.

14. *EUSEMIA NIPALENSIS*.

Eusemia nipalensis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 4 (1875).

Nepal (*Ramsay, &c.*).

Type, B. M.

15. *EUSEMIA DISTINCTA*.

Eusemia distincta, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 5 (1875).

Silhet (*Doubleday*).

Type, B. M.

16. *EUSEMIA IRENEA*.

Eusemia irenea, (De Haan), Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 84, n. 4 (1874).

Khasia Hills.

Coll. F. Moore.

— ?

Coll. B. M.

Dr. Boisduval does not mention that the tegulæ are sulphur-yellow. The localities he gives are Timor or Sumatra.

4.—*E. VETULA* GROUP.17. *EUSEMIA COMMUNIS*.

Eusemia communis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 6; pl. xiii, fig. 1 (1875).

Silhet.

Type, B. M.; Coll. F. Moore.

18. *EUSEMIA COMMUNICANS*.

Eusemia communicans, Walker, Lep. Het. Suppl., 1, p. 50 (1864).

India, and *sp. ead.*? Penang.

B. M.

19. *EUSEMIA VETULA*.

Heracleia vetula, Hübner, Zutr. exot. Schmett., figs. 657, 658 (1832).

Java (*Horsfield*).

B. M.

20. *EUSEMIA FASCIATRIX*.

Eusemia fasciatrix, Westwood, Cab. Orient. Ent., p. 67 (1847).

Eusemia bijugata, Walker, Journ. Linn. Soc., vi, p. 85.

Sarawak (*Wallace*).

B. M.

21. *EUSEMIA CONNEXA*.

Eusemia connexa, Walker, Lep. Het., 7, p. 1773 (1856).

Java (*Horsfield*).

Type, B. M.

5.—*E. BISMA* GROUP.22. *EUSEMIA BISMA*.

Eusemia bisma, Moore, Cat. Lep. Mus. E. I. Comp., 2, p. 287 (1858-9).

Eusemia Lambertiena, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 83, n. 3 (1874).

Java (*Horsfield*).

Type, B. M.

6.—*E. DENTATRIX* GROUP.23. *EUSEMIA DENTATRIX*.

Eusemia dentatrix, Westwood, Cab. Orient. Ent., p. 68; pl. 33, fig. 5 (1847).

Nepal and N. India.

B. M.

7.—E. VILICOIDES GROUP.

24. EUSEMIA VILICOIDES.

Eusemia vilicoides, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 141, n. 7; pl. xiii, fig. 2 (1875).

Hakodadi (*Whitely*).

Type, B. M.

Also in Mr. Moore's Collection.

8.—E. EUPHEMIA GROUP.

25. EUSEMIA SUPERBA.

Eusemia superba, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 141, n. 8; pl. xiii, fig. 3 (1875).

Xanthospilopteryx geryon, Wallengren (*nec* Fabricius), Kongl. Svenska Vetensk.-Akad. Handl., 5, n. 4, p. 7 (1865).

♂ Zulu (*Angas*); ♀ Port Natal (*Gueinzus*).

Type, B. M.

26. EUSEMIA AFRICANA.

Eusemia africana, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 142, n. 9 (1875).

♂ Durban (*Trimen*), ♂ ♀ Natal (*Gueinzus* and *Gooch*), ♂ Zulu (*Angas*).

Type, B. M.

27. EUSEMIA EUPHEMIA.

Phalæna euphemia, Cramer, Pap. Exot., iv, p. 105; pl. 345, fig. A (1782).

♀. *Noctua geryon*, Fabricius, Ent. Syst., iii, 2, p. 28, n. 67 (1793).

W. Africa, Ashanti, Guinea, White Nile.

B. M.

That this is the species described by Fabricius (and not the insect referred to *N. geryon* by Wallengren) is proved by the following words in the description:—"Alæ anticæ atræ, macula oblonga ad marginem interiorem baseos et quinque in disco flavescentibus."

28. EUSEMIA PARDALINA.

Eusemia pardalina, Walker, Trans. Nat. Hist. Soc. Glasgow, vol. i, p. 5, pl. v, fig. 1 (1869).

Eusemia ochracea, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 142, n. 10 (1875).

Congo (*Richardson*).

B. M.

Walker's figure of this species is too brightly coloured, but it unquestionably represents the insect recently described by myself.

29. EUSEMIA CONTIGUA.

Eusemia contigua, Walker, Lep. Het., 1, p. 50, n. 7 (1854).

———? (*Milne*).

Type, B. M.

30. *EUSEMIA BUTLERI*.*Eusemia Butleri*, Walker, Characters Het. Lep., p. 111 (1869).

———? Coll. T. W. Wood.

31. *EUSEMIA LONGIPENNIS*.*Eusemia longipennis*, Walker, Lep. Het., 1, p. 51, n. 9 (1854).

West Africa, Ashanti. Type, B. M.

32. *EUSEMIA PALLIDA*.*Eusemia pallida*, Walker, Lep. Het., 1, p. 52, n. 10 (1854).

———? Type, B. M.

33. *EUSEMIA TERMINATIS*.*Eusemia terminatis*, Walker, Lep. Het., 7, p. 1587, n. 16 (1856).

———? Type, B. M.

34. *EUSEMIA ERIOPIS*.*Agarista eriopis*, Herrich-Schäffer, Lep. Exot. Sp., sér. 1, pl.

7, fig. 31.

Madagascar. Coll. R. Stretch.

Allied to *E. terminatis*, but much smaller.9.—*E. AGRIUS* GROUP.35. *EUSEMIA ? ZEA*.*Eusemia zea*, Herrich-Schäffer, Exot. Schmett., fig. 35; Boisduval,

Revue et Mag. de Zool., s. 3, vol. 2, p. 74, n. 34 (1874).

Cazamanca.

36. *EUSEMIA AGRIUS*.*Eusemia agrius*, Herrich-Schäffer, Exot. Schmett., fig. 33.

Madagascar.

37. *EUSEMIA PEDASUS*.*Eusemia pedasus*, Herrich-Schäffer, Exot. Schmett., fig. 34.

Madagascar.

38. *EUSEMIA PALES*.*Eusemia pales*, Boisduval, in Guérin's Règne anim. Ins., pl. lxxxiii,

fig. 1.

Antananarivo.

10.—*E. BASALIS* GROUP.39. *EUSEMIA PESHWA*.*Eusemia peshwa*, Moore, Cat. Lep. E. I. Comp., ii, p. 289, n. 663;pl. vii^a, fig. 2 (1858-9).

N. India and Ceylon

The following species seems allied to *E. peshwa*, and may perhaps be referred to *Eusemia*.

40. *EUSEMIA BASALIS*.

Eusemia basalis, Walker, Lep. Het., i, p. 53, n. 12 (1854).

Bengal.

Type, B. M.

11.—*E. BELANGERII* GROUP.

41. *EUSEMIA VITTATA*.

Eusemia vittata, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 143, n. 13 (1875).

Java (*Horsfield*).

Type, B. M.

42. *EUSEMIA SUBDIVES*.

Eusemia subdives, Walker, Journ. Linn. Soc., iv, p. 196, n. 5 (1860).

Malacca (*Wallace*).

43. *EUSEMIA BELANGERII*.

Eusemia belangerii, Guérin-Ménéville, Voy. de Belanger, Atlas, Ins., pl. 5, fig. 3.

Java (*Horsfield*).

B. M.

44. *EUSEMIA MOOREI*.

Eusemia moorei, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 77, n. 41 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, fig. 5 (1874).

Java (*Horsfield*).

B. M.

Boisduval says that this species is from the Moluccas; but this must be an error.

45. *EUSEMIA HESPERIOIDES*.

Eusemia hesperioides, Walker, Journ. Linn. Soc., vi, p. 86 (1862).

Sarawak (*Wallace and Low*).

B. M.

The example presented by Mr. Low has the tawny band of secondaries continued across the wing.

46. *EUSEMIA PULCHRA*.

Eusemia pulchra, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 143, n. 12; pl. xiii, fig. 4 (1875).

Mulhrut, India (*F. Walker*).

Type, B. M.

47. *EUSEMIA TRICOLOR*.

Eusemia tricolor, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 142, n. 11 (1875).

Sarawak (*Wallace*).

Type, B. M.

12.—E. AMATRIX GROUP.

48. EUSEMIA PROXIMA.

Eusemia proxima, Walker, Lep. Het., 1, p. 50, n. 6 (1854).

Assam (*Warwick*).

Type, B. M.

49. EUSEMIA AMATRIX.

Eusemia amatrix, Westwood, Cab. Orient. Ent., p. 68, pl. 33, fig. 4 (1847).

Assam.

50. EUSEMIA CLYMENE.

Eusemia clymene, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 72, n. 30 (1874).

Eusemia amatrix, Boisduval (*nec* Westwood), *l.c.*, p. 63, n. 11.

Java (*Horsfield*).

B. M.

51. EUSEMIA ARUNA.

Eusemia aruna, Moore, Cat. Lep. E. I. Comp., ii, p. 288, n. 659 (1858-9).

Darjeeling.

52. EUSEMIA ARRUANA.

Eusemia arruana, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 75, n. 36 (1874).

Aru (*Lorquin*).

53. EUSEMIA VACILLANS.

Eusemia vacillans, Walker, Lep. Het. Suppl., i, p. 51 (1864).

Celebes.

B. M.

Excepting in the absence of the tawny band of secondaries, this is extremely like *E. clymene*.

13.—E. VULCANIA GROUP.

54. EUSEMIA VULCANIA, *n. sp.*

♂. Primaries blue-black, fringe white at apex; a plumbeous streak across the middle of the cell, and a second on discocellulars; a central group of three sulphur-yellow spots, separated from each other by the median nervure and its first branch, the first spot sub-quadrate and within the cell, the second cuneiform at base of first median interspace, the third considerably larger, sub-ovate and notched internally; four white spots in a nearly straight series beyond the cell; secondaries steel-blue, with purplish and greenish reflections, costa reddish-brown; fringe of outer margin broad and snow-white; head brown; palpi and collar fulvous; thorax black;

abdomen invisible green, anal tuft fulvous; wings below brown, shot all over with bright steel-blue and green; lower yellow spot of primaries divided longitudinally by a black line; costal margin fulvous; otherwise as above: pectus, coxæ, femora, lower margin of tibiæ and tarsi, and venter, orange. Expanse of wings, 2 in. 5 lin.

Burmah.

Type, Coll. F. Moore.

This is one of the most striking species in the genus.

55. *EUSEMIA EUDAMOIDES*, *n. sp.*

♂. Primaries blue-black at base, becoming deep chocolate-brown towards outer margin, apical fringe white; veins at base, a streak across the centre of the cell, and another on discocellulars, plumbaginous; a central group of three spots, nearly as in the preceding species, but pale buff (almost white); a pale buff oblique fasciole beyond the cell; secondaries deep brown, with apical fringe white, a central deep ochreous band, becoming diffused towards costa; head and collar fulvous; antennæ testaceous, annulated with black; thorax black; abdomen deep ochreous, barred with triangular black spots; wings below chocolate-brown, primaries, with costal margin, orange; spots nearly as above, but larger and white; secondaries with the central band broader, otherwise as above; body below deep ochreous.

Expanse of wings, 2 in. 4 lin.

Celebes (*Wallace*).

Type, B. M.

This species bears a label with the name *Damias eudamoides*; it is an undoubted *Eusemia*, although the secondaries are rather narrow.

14.—*E. ALBOMARGINATA* GROUP.

56. *EUSEMIA ALBOMARGINATA*.

Eusemia albomarginata, Moore, Proc. Zool. Soc., p. 569 (1872).

Burmah.

Type, Coll. F. Moore.

I think that *Eusemia funebris*, Moore (*loc. cit.*), must belong to the group which I have lately referred to *Agarista*.

15. *E. DOLESCHALLII* GROUP.

57. *EUSEMIA DOLESCHALLII*.

Eusemia doleschallii, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 77, n. 40 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, figs. 2, 3 (1874).

Amboina.

58. *EUSEMIA SEMPERI*.

Eusemia semperi, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 76, n. 38 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, fig. 4 (1874).

Celebes.

59. *EUSEMIA LETHE*.

Eusemia lethe, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 77, n. 39 (1874); Felder, Reise der Nov. Lep. 4, pl. cvii, fig. 7 (1874).
Celebes.

I have much doubt as to the following species belonging to this genus.

60. ? *EUSEMIA BATESII*.

Eusemia batesii, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 78, n. 42 (1874); Felder, Reise der Nov. Lep. 4, pl. cvii, fig. 8 (1874).
Moluccas.

61. ? *EUSEMIA LINDIGII*.

Eusemia lindigii, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 78, n. 43 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, fig. 6 (1874).
Moluccas.

This species closely resembles *Phasis separata*, Walker, an American species.

62. ? *EUSEMIA JOSIOIDES*.

Eusemia josioides, Walker, Lep. Het. Suppl., i, p. 54 (1864).
Gilolo.

Seems to approach the genus *Arctioneura*, Felder.

63. ? *EUSEMIA FLAVICILIATA*.

Eusemia flaviciliata, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 79, n. 44 (1874).
Philippines.

64. ? *EUSEMIA MEGISTO*.

Eusemia megisto, Boisduval, Voy. de l'Astrolabe, Lép., pl. v, fig. 5, p. 179; Revue et Mag. de Zool., s. 3, vol. 2, p. 79, n. 46 (1874).
Dorey.

Dr. Boisduval himself says, "It would perhaps be better located
"near the genus *Vitessa*, of Mr. Moore."

I believe that I have given reasons for expunging from this genus all the remaining species described as *Eusemia* in my paper on the *Agaristidæ* (Ann. and Mag. Nat. Hist., s. 4, vol. 15, pp. 135—144). I would, however, add that, unless *E. mollis* and *E. emolliens* differ sufficiently from *E. lineea* and *E. bambucina* to form a distinct genus, they may be placed with them in the genus *Ophthalmis*.

DESCRIPTIONS OF THREE NEW SPECIES OF DIURNAL
LEPIDOPTERA FROM CENTRAL AMERICA.

BY HERBERT DRUCE, F.L.S., F.Z.S.

CERATINIA BOUCARDI.

Upper-side, ♂, black. Anterior wing with the base rufous, a large central black spot in the middle of the cell, a band of three yellow streaks near the apex and a sub-marginal row of six white spots. Posterior wing rufous, with the outer margin broadly black, a small black spot at the end of the cell.

Under-side the same as above, with the addition of a sub-marginal band of white spots on the posterior wing. The ♀ differs from the male only in the width of the black margin of the posterior wing, which is much wider and has a sub-marginal band of white spots.

Exp. ♂, $2\frac{1}{2}$ inch; ♀, 2 inch.

Hab. Veragua.

Mus. Druce.

I have much pleasure in naming the above new species after Mr. Boucard, through whose kindness I have been enabled to add many beautiful specimens to my collection.

CERATINIA MYLASSA.

Upper-side, ♂, anterior wing black with the base rufous, a large bright yellow spot at the end of the cell; a band of four yellow spots, the first on the costal margin small, the fourth nearest the anal angle large, and a sub-marginal row of seven yellow spots, the three at the apex are the largest. Posterior wing rufous with a black spot at the end of the cell, the outer margin blackish.

Under-side, anterior wing the same as above; posterior wing with the costal margin broadly black; the black spot as above, and three white spots at the apex.

Upper-side, ♀, anterior wing the same as the in male, but with the yellow spots much smaller; posterior-wing, the outer half broadly black, a rufous spot near the apex, and a sub-marginal row of white spots.

Under-side, the same as above.

Exp. ♂, $2\frac{1}{2}$ inch; ♀, $2\frac{3}{8}$ inch.

Hab. Veragua.

Mus. Druce.

ITHOMIA PAGASA.

Upper-side, ♂, black; anterior wing crossed beyond the middle by a semi-transparent band of pale yellow, beyond which, and close to the costal margin, is a large yellow spot, two white spots near the apex, and one below, nearer the anal angle. Posterior wing black, crossed in the middle by a broad yellow band.

Under-side, the same as above, except that both wings have a sub-marginal row of white spots. Female the same as the male.

Exp. 2 inch.

Hab. Veragua.

Type, Mus. Druce.

Also in Mus. Salvin and Godman.

The above species is allied to *I. Zelica*, Hew., but differs from that species in many respects.

London: October, 1875.

DESCRIPTIONS OF THREE NEW SPECIES OF *TENTHREDINIDÆ* FROM SCOTLAND.

BY P. CAMERON, JUN.

NEMATUS CADDERENSIS, *sp. n.*

N. brevisculus, nitidus, luteus, antennis articulis 2 primis, maculis 2 vel 3 mesonoti, abdomineque dorso fere toto nigris; coxis, trochanteribus, tibiisque pallidis, tarsis posticis fuscis; alis amplis, hyalinis, stigmatate testaceo. ♀. *Long. fere 4 lin.*

♀. Antennæ a little longer than the abdomen, luteous, the two basal joints black; the 3rd, 4th, and 5th joints almost equal in length, the remaining joints shorter. Head bright luteous; the ocelli brownish; the labrum and clypeus whitish-yellow; the antennæ at the base surrounded with black. Thorax bright luteous, shining, finely punctured; the pronotum slightly paler than the mesothorax; two (often three) black longitudinal stripes are on the mesonotum: the large white cenchri are surrounded with black. Abdomen short, thick, and broad, of a like colour to the thorax, the upper surface from the base to the commencement of 2nd last segment black; the cerci are very short, hairy, and of a pale yellow colour, the anal segment also hairy; the triangular incised part at the base of the abdomen pale yellow. The sheaths of the saw are faintly marked with black. Feet pale luteous; the coxæ, trochanters, and tibiæ whitish-yellow; the posterior tarsi with the apex of the posterior tibiæ pale fuscous; claws toothed. Wings longer than the body, hyaline, iridescent, with a decided fuscous-yellowish tinge; the costa and stigma testaceous, nervures black; the 2nd recurrent nerve is received a little in front of the submarginal one. The entire body is covered with a close whitish down.

The ♂ has the antennæ entirely black, sometimes faintly fuscous at the base, shorter and thicker than in the ♀, and tapering considerably towards the apex. The head (mouth excepted), meso- and meta-thorax, and abdomen above, black. The wings are shorter in proportion to the body than in the ♀. In some specimens, the eyes are surrounded with luteous.

LARVA.—Head smaller than the 2nd segment, the colour intensely black, and the surface covered with a slight microscopic down, and somewhat punctured; the sides of the mouth slightly greenish. Feet glassy greenish-white, with black claws, the claspers light green. The body above is of a beautiful dark sea-green colour, and the lower half of the sides is whitish. On the sides, are ten large oval orange spots, each divided by the folds of the skin into two parts, which are however closely continuous. Below the orange marks, is a row of roundish irregular dots, and below these again, and directly over the feet, is a row of oblong longish black spots. Over the orange spots, is a line of close continuous black dots, of irregular shape, but somewhat oval. These marks proceed from the 2nd to the 12th segment. On the back at the termination of the segments, are two rather small roundish black dots. Directly over the anal segment is a large black spot, much larger than any of the other marks, and the last segment is also beset with a few longish hairs. The cerci are black, white at the base. The lower part of the body is white. In shape the larva is identical with that of *N. melancecephalus*, and the length is about $1\frac{1}{4}$ inch.

The pupa is green.

The larvæ I found feeding on *Salix cinerea* in August, on the hills between Port Glasgow and Greenock; and I have got them feeding on birch in Cadder Wilderness, Rannoch, and Kingussie, in June, July, and August. They eat along the edge of the leaves in a similar fashion to the larvæ of *N. melanocephalus*. The cocoon is double, and, in confinement, was spun either in the earth or between the leaves; the flies made their appearance in July, and from the late-feeding brood in the following spring, there being evidently two broods in the year. In some of the cocoons the outer covering is separated by a considerable space from the inner one.

Comparing this species with specimens of *N. croceus*, Fall. (= *fulvus*, Htg.), taken in the same localities, it is seen that the antennæ in *Cadderensis* are shorter and thicker; the abdomen is also shorter, and at the same time broader and rounder: further, the cerci are shorter, and the wings in *croceus* are much clearer, these in *Cadderensis* having a decided yellowish tinge; the clypeus in the latter species is apparently deeper notched; but all these are characters in which both species tend to vary, and I am at a loss to point out distinctions that will serve to discriminate the two species. We seem to have here a case like in *Lophyrus similis* and *L. pini*, where two very differently marked larvæ produce very similar imagos; and, in the present instance, there is another interesting peculiarity, viz., the very great resemblance which the larva of *Cadderensis* bears to that of *N. melanocephalus*, the only apparent mark of distinction being, that in the former the orange marks are nearly (if not quite) free from the black marks; while in the latter, these go through them in the middle.

It is also worthy of remark that the imagos produced from the willow-feeding larvæ are smaller and darker coloured than those got from birch, and the willow larvæ had besides a much brighter green colour.

I have submitted specimens of *N. Cadderensis* to Dr. van Vollenhoven and to Professor Zaddach; the former gives as his opinion that it cannot be distinguished from his *N. trimaculatus* (Tijdschr. Ent. Deel v, 69, pl. 4), while the Prussian naturalist is equally sure that there is no way of separating it from *N. croceus*; but the discovery of the larva clearly shows that it is really a distinct species.

N. trimaculatus, Voll., is I think only a var. of *N. croceus*. The *N. trimaculatus*, Lep., is doubtless the gooseberry pest.

With regard to *N. melanocephalus*, it may be useful to give its synonymy, as it has been involved in no little confusion.

Tenthredo salicis, De Geer, Mém. ii, 259, 14, tab. 37, figs. 12—21 ; *Nematus melanocephalus*, Hartig, Blatt- u. Holz-wespen, 219, 52 ; *N. perspicillaris*, Brischke, Besch. etc. der Blattwespen Larven, 7, pl. 1, fig. 3 ; *N. salicis*, Thomson, Hymen. Scand., i, 141, 70.

The species was not known to Hartig, who merely abstracted De Geer's description, and applied the name of *melanocephalus* to it, he rightly remarking that it is not the *Tenthredo salicis*, Lin. But Thomson has judged otherwise, and he has renamed the *Nematus salicis*, Hartig (which that author considered to be identical with *T. salicis*, Lin., and in my opinion he is perfectly correct in doing so), *inflatus*, and adopted the name of *salicis* for the other species. It seems to me, however, that the only safe course is to use Hartig's name for De Geer's insect, unless an earlier name be discovered.

NEMATUS DORSATUS, sp. n.

N. nitidus, rufo-luteus, antennis (vel suprè), mesonoti lateribus, metanoto, abdominisque dorso pro parte nigris ; ore, trochanteribus, tibiisque pallidis ; alis flavescenti-hyalinis, stigmatè flavo-testaceo, basi vel nigro.

Long. 3½ lin.

♀. Antennæ shorter than the body by about three-quarters of a line, filiform, tapering slightly towards the apex, 3rd and 4th joints equal, the rest a little shorter ; the colour is luteous, with a black line above the whole of the joints, or more usually only above the first two. Head luteous, covered with a whitish down, the portion below the antennæ and the outside of the eyes white ; clypeus deeply notched ; the tips of the mandibles brown ; palpi pale ; the clypeus and surrounding parts densely covered with white hair ; the ocelli black. Thorax luteous, densely covered with down ; the pronotum paler ; breast luteous, very smooth and shining ; the sides of the mesonotum and the metanotum black ; cenchri prominent, white. Abdomen luteous, and at the base narrower than the thorax, and from that it gradually decreases in width towards the apex, which is acuminate ; the dorsal surface (especially on the basal part) more or less marked with black ; cerci very long, the saw considerably exerted. Feet pale luteous ; coxæ, trochanters, and tibiæ, whitish. Wings hyaline, faintly yellowish, the costa, stigma and nervures (except at the apex) yellow-testaceous. The 1st sub-marginal nervure is very faint ; the 2nd sub-marginal cellule is about a quarter longer than the 3rd ; the 2nd recurrent nervure is nearly joined to the 2nd sub-marginal. In the under-wing what Thomson calls the "nervus recurrens" is joined to the "nervus transversus ordinarius," which is not the case in *N. luteus*. Aberration : *a*, stigma black at the base ; *b*, dorsal surface of abdomen devoid of black ; *c*, posterior wings smoky.

The ♂ is unknown to me.

LARVA.—Full fed. Body cylindrical. Head brownish-red, mouth black ; eyes situated in a longish black splash, which extends from the vertex. Body to the middle of the sides brownish-red, obscured with black, the black tint being deeper

on the sides than on the back; the lower part of the sides and anal segment reddish-brown, without any black markings, the last segment hairy. The skin is smooth and shining; the feet reddish-white. Length, 11—12 lines.

The larvæ feed on birch, and walk very fast and restlessly, and when touched by anything the body is lashed about furiously. The flies I have taken from June 8th (which is the earliest date I have noted) to the end of that month; the earliest larvæ I have seen were on the 10th of the same month; and again I find them at the end of July and in August. From a larva which spun up on the 31st July I reared the imago fifteen days after; and from these observations it is clear that the species is double brooded. The cocoon (which is double) is spun in the earth.

This species differs mainly from *N. luteus* in having the abdomen acuminate, with its dorsal surface black; in the face being more sharply pointed; and in the above-mentioned difference in the alar neurulation. In addition to this, the habits and coloration of the respective larvæ are totally different. It has clearly a near relationship to *N. acuminatus*, Thoms., and I formerly considered it a variety of that species; but Prof. Zaddach tells me that he has a specimen of the true *acuminatus*, and that it does not agree with mine; moreover, Thomson's species has the breast black.

N. dorsatus has occurred in Inverness-shire, Rannoch, and Bishop-ton, and is not an uncommon species.

And now a few words regarding *Nematus luteus*. In Scotland, three color varieties of it occur: first (and this is by far the rarest) there is the entirely luteous form, which seems to be the commonest on the continent, and is that described by Thomson; second, there is the very common form, with the edges of the mesonotum and metanotum black; and third, there is a variety similarly coloured to the last, but having besides three (sometimes two) black marks on the mesonotum. That this last form really belongs to *luteus* is certain, from my having reared it from the ordinary larva. It seems not to have been described by any author, unless it be var. *b.* of *N. Klugi*, (Dbm.) Thoms. (= *bilineatus*, Klug), which very closely resembles it. *N. Klugi* (typical form) is without any doubt a good species. I have a specimen that I believe pertains to it, which I took in Glen Feshie.

The only author who has described the larva of *N. luteus* is Kaltenbach (Die Pflanzen-Feinde, 619). It may be found very commonly on the alder, resting on the upper surface of the leaf, and eating holes in its centre in a like fashion to the larva of *Hemichroa luridiventris*. It has the head of an obscure greenish-yellow colour, with a brown

mouth and two black marks on the vertex, and covered closely with short hairs. The feet are light green, and are almost hidden by the overhanging folds of the body; the claws are brown. The body is flat, tapering towards the end, its colour is green, not unlike the colour of the alder leaf, and the skin is studded over with minute white tubercles, fourteen or fifteen to a segment, their number decreasing towards the anus; the skin at the sides has some hairs attached to it. Length, from 8—10 lines. The cocoon is very close and compact, and is spun in the earth.

It is very like the larva of *N. abdominalis*, but may be easily known from it by the two marks on the head.

PHENUSA ALBIPES, *sp. n.*

P. nigra, nitida, antennis longis; pedibus albidis; tarsis posticis fere fuscis; alis fumatis. ♀. *Long. fere 1½ lin.*

Black, shining, covered sparsely with a very short pile, only visible in certain lights. Antennæ a little shorter than the body, slightly pilose; the 3rd joint longer than the 4th. Feet entirely white, posterior tarsi and tips of anterior faintly fuscous. Wings smoky, costa, nervures, and stigma black; the marginal nervure is received a little past the middle of the 2nd marginal cellule. Sheaths of the saw and saw itself largely projecting.

It comes near to *P. pygmæa*, but is readily distinguished from it by its longer antennæ, black tegulæ, and almost entirely white legs.

Taken in a rose bush, in Cadder Wilderness, on 20th August last.

It may be here pointed out that *Phyllotoma tormentillæ*, Healy (Ent., iv, 135), *Fenusa pygmæa*, Healy (Ent., v, 300), Kaltenbach (Die Pflanzen-Feinde, 225 and 227), = *Fenella nigrita*, Westwood.

Glasgow: October 7th, 1875.

DESCRIPTION OF AN ADDITIONAL SPECIES TO THE LIST OF
BRITISH HEMIPTERA.

BY EDWARD SAUNDERS, F.L.S.

MACROCOLEUS TANACETI.

Phytocoris tanaceti, Fall., Hem. Succ., p. 83, No. 13.

(*nec Oncotylus tanaceti*, Fieber, Dougl. and Scott).

♀. Sub-oval; golden or orange-yellow, or greenish-yellow, densely covered with black bristly hairs, sparingly intermixed on the head, thorax and scutellum with a few whitish ones. Membrane subpellucid, nerves golden-yellow, surrounded by a dusky cloud, cells clouded. Under-side palely pubescent with a few black bristly hairs, legs covered with black hairs, tibiæ with strong black spines. Antennæ hairy.

Length, 2 lines. On *Tanacetum vulgare*. Chobham, Surrey.

Closely allied to *M. molliculus*, but differing from it in the colour and the absence of the dark band, and the downy pubescence so characteristic of that species.

I am very glad to be able to add this species again to our list, especially as I was obliged to sink the species described under the name *tanaceti* by Messrs. Douglas and Scott, as a synonym of *Tinicephalus hortulanus*. I may say that Mr. Scott quite agrees with me that the above is Fallén's true species.

Thus far, I have only found the ♀, but hope to get the ♂ next year,—the latter seems to be very rare, as Dr. Reuter (who finds the ♀) says in his excellent book on the Capsidæ of Finland, "Mas mihi incognitus."

2, Spencer Park, Wandsworth :

13th October, 1875.

OBSERVATIONS ON SOME SPECIES OF *BOLITOCHARA*, WITH DESCRIPTION OF A NEW EUROPEAN SPECIES.

BY D. SHARP, M.B.

Considerable discrepancy prevails in the European collections as to the names of some of the common species of *Bolitochara*, and I have for a long time been in doubt as to the correct names of the species in my own collection. The recent publication of the part of Mulsant and Rey's "Histoire Naturelle des Coléoptères de France," treating of the "*Bolitocharaires*," has enabled me to satisfy myself about certain of the points that were doubtful to me, and has also convinced me that I have a new species in my collection. Rey describes in the work alluded to six species, viz., *B. lucida*, *B. elongata*, *B. flavicollis*, *B. lunulata*, *B. obliqua*, and *B. varia*; and two of these, viz., *B. elongata* and *B. flavicollis*, he considers to have been unknown to Erichson. The first of these, viz., *B. elongata*, is undoubtedly a quite distinct species from *B. lucida*; but it is not the *Bolitochara elongata* of Heer, as M. Rey supposes. A considerable portion of the types of Heer's species of *Staphylinidæ* came into my possession with Castelnau's collection, and among these types are three individuals of *Bolitochara elongata*, Heer; these specimens are *B. flavicollis*, Rey, with which insect, moreover, I consider that the description of Heer fully agrees (it is inapplicable to *B. elongata*, Rey). I think, therefore, it would be undesirable to use the name *B. elongata* a second time, and would propose to call this species *B. Mulsanti*.

As regards the second of Rey's new species, viz., *B. flavicollis*, I feel pretty certain that it is the *B. lunulata* of Erichson and Kraatz, while *B. lunulata*, Rey, is the same as *B. bella*, Kraatz. I have received specimens of *B. bella* from M. Ch. Brisout de Barneville, under the name of *B. lunulata*, and M. Fauvel formerly named individuals of *B. bella* as *B. lunulata* for Mr. Crotch, while Rey himself tells us that a number of specimens of *B. bella* sent to him by Dr. Kraatz are not distinct from *B. lunulata*. The descriptions of Rey moreover fully support this view.

I consider the synonymy to run as follows:—

1. *Bolitochara lucida*, Er., Kr., Rey.
2. *Bolitochara Mulsanti*.
elongata, Muls. & Rey.
3. *Bolitochara lunulata*, Er., Kr.
elongata, Heer.
flavicollis, Muls. & Rey.
4. *Bolitochara bella*, Maerk., Kr.
lunulata, Muls. & Rey.

The following new species should be placed between *B. Mulsanti* and *B. lunulata*.

BOLITOCHARA REYI, n. sp.

Rufescens, elytris versùs angulos posteriores, abdomineque ante apicem, fuscis; capite thoraceque subtiliter punctatis, hoc elytris multo angustiore; elytris sat fortiter punctatis, fere æqualibus.

Long. corp. 2¼ line.

Antennæ fully $\frac{3}{4}$ lin. in length, reddish, the three basal joints a little paler than the following ones, and the eleventh also slightly paler than the preceding ones, the fifth joint not at all transverse, and the tenth very nearly as long as broad, the terminal joint very long, almost as long as the three following together. Head reddish, broad, much narrowed towards the neck, the eyes large, the surface rather closely, but not very distinctly, punctured. Thorax reddish, much rounded and narrowed towards the front, in the middle in front of the base with a rather large fovea, the surface on the disc distinctly, and rather closely, punctured, at the sides very sparingly and indistinctly. Elytra broad, at the shoulders much broader than the base of the thorax, reddish in colour, slightly darker behind the scutellum and distinctly so towards the outside at the extremity, rather closely and roughly punctured, only slightly sinuate at the outer angle of the hind margin, a little depressed behind the scutellum. Hind-body broad, reddish, the penultimate segment infusate, the surface rather coarsely and moderately closely punctured.

I obtained the only specimen I have seen of this species from Castelnau's collection; it is a female, and was labelled "*Bolitochara lucida*, P.," the "P" meaning Paris; Castelnau, I believe, received the specimen with Gautier des Cotte's collection.

The species is extremely similar in form to *B. lucida*, but is rather broader, and has the antennæ longer, the terminal joint being very distinctly longer; the head and thorax are more finely punctured, and the elytra are very nearly without the conspicuous depressions of *B. lucida*. Its larger size, more elongate antennæ, and thorax more rounded and narrowed towards the front, readily distinguish it from *B. lunulata* (*flavicollis*, Rey).

I have much pleasure in naming this conspicuous species in honour of the talented entomologist of Lyons, to whom we owe the recent parts of the "Histoire Naturelle des Coléoptères de France."

Thornhill, Dumfries:

October, 1875.

Note on Orchestes semirufus, Gyll.—I have, on several occasions during the past summer, beaten from wild cherry at Woking, examples of an *Orchestes*, differing from *semirufus* in having the tarsi and club of antennæ (pitchy or) black, and in some examples the tibiæ and femora pitchy; and from *scutellaris*, besides these characters, in being always smaller, of a darker colour, and with the head, thorax, and rostrum black. Not one of those taken (about 30) exhibits the clear red head (excepting the eyes, which are often pitchy), thorax, and limbs of *O. scutellaris*. *O. semirufus* has been referred as a variety to *scutellaris*, and my specimens above noticed appear to be even darker than those mentioned in Ent. Mo. Mag., x, p. 18. M. Ch. Brisout (Ann. Soc. Ent. Fr., 1865, p. 271), in his Monograph, refers to one example only in which the knees and apex of the tibiæ are rather widely darkened. I have captured ordinary *scutellaris* also on wild cherry, but never in company with these dark insects: the former appears to be of more northern distribution.—G. C. CHAMPION, 274, Walworth Road, London, S.E.: October, 1875.

Note on Otiorhynchus monticola.—The Irish specimens of an *Otiorhynchus* recorded by me at p. 82 of this vol. as *monticola*, Germ., appear to me, from an examination of a very long series of our ordinary northern species recently referred to *O. blandus*, to be only an extreme form of the latter.—ID.

[The description of *O. blandus*, Schön. (1836), reproduced by Stierlin, does not in the least accord with these Irish specimens; it says "*elytris subtiliter vage punctulatis, vix striatis*," and the chief differential point between *blandus* and *monticola* is therein stated to be that the striae of the elytra are scarcely perceptible. *O. lavigatus*, Gyll. (1813), identified by Thomson with *blandus*, has the elytra "*subtilissime punctato-striata, interstitiis planis, adhuc subtilius crebre et vage punctulatis*;" and this also does not at all agree with the Irish insects. Thomson makes Gyllenhal's *lavigatus* the type (he could not adopt his name, on account of the long prior and different *lavigatus* of Fabricius), terming the elytra "*punctato-striatis, interstitiis rugulosis*," and, adopting Schönherr's name *blandus* for the species, sinks the latter's insect as a variety, saying that the elytra have the striae conspicuous only at the base and sides, "*interstitiis subreticulato-striosis*." Supposing Thomson to be correct in refer-

ring these different points of structure to the same species, a further var. is required to include the Irish specimens, "*elytris evidenter sat grosse striato-punctatis, interstitiis sub-elevatis*;" and it is then easily seen how our correspondent has been misled, if, indeed, it be not necessary to rename a species which so contradicts its own characters; as the original *blandus* is stated by its author to be distinguished by the absence of the very features it is now stated to possess.—E. C. R.]

Note on Chrysomela marginata.—This species, originally found, I believe, near Pegwell Bay, near Ramsgate, seems decidedly scarce on this side of the border, though not so uncommon in Scotland, where it has been found by Dr. Syme in Orkney (on *Plantago maritima*), and by Mr. Champion at Braemar by sweeping alongside the Dee. Near Edinburgh it is not uncommon, though very local. As far as I know, it is confined to one particular spot on Arthur's Seat, a much exposed valley between the summit of the hill and a lesser peak known as the Lion's Haunch, about 700 feet above the sea, where the grass forms a short velvety turf, and the surface of the ground is covered with scattered fragments of the neighbouring basalt rocks. Beneath these fragments *Chrysomela marginata* is to be found, singly, or in twos and threes. When disturbed, it persistently feigns death. It begins to appear about the middle of June, and is most common about the first week in July, when I have taken as many as thirty specimens in the course of an afternoon's work, by assiduously turning over stones, &c., in its locality. I have never seen the larva or pupa, and do not know for certain what its food-plant at Edinburgh is, as no *Plantago maritima* grows near. The short turf of the hill is composed in great part of millefoil (*Achillea millefolium*), and on that the beetles may feed, as some I kept in captivity fed voraciously on this by night, returning to their shelter at the bottom of the plants by day. I have never seen it moving about in the day-time like its congeners *C. menthastri* and (according to Mr. Champion) *cerealis*, but have only found it under the stones. In Wilson's "Entomologia Edinensis," the Calton Hill is also given as a locality, but I have never found it there, chiefly no doubt owing to my not having looked there at the right time.—W. A. FORBES, West Wickham, Kent: 17th September, 1875.

On the metamorphoses of Melœ cicatricosus.—On the 11th April, I took a pair of this species coupled, and put them under a bell-glass perforated at the top in a vase, in order to feed them with lucern, chickweed, grasses, &c., all of which they ate. On the 1st May, the female had scooped out in the earth a nest, an inch in length and depth, in which she laid 1500 to 2000 eggs of an orange-yellow, after which she very artistically hid the opening by a stopping of masticated leaves and earth. These eggs hatched on the 11th June, and from them came out the kind of larva well known under the name of *Triangulin*, Dufour, and figured by De Geer, Réaumur, Newport, Jacquelin-Duval, &c. I knew that these larvæ climbed on to *Hymenoptera*, in order that they might thus be carried into their nests, where they undergo their metamorphoses, indeed, I amused myself by causing them to climb on to flowers and thence to jump on to all the *Halictus*, *Osmia*, *Megachile*, &c., that I presented to them. But I wished to follow them further, and this was not possible while they were at liberty.

I then conceived the idea of putting some honey into a glass tube, and upon it an egg drawn from the abdomen of a *Vespa vulgaris*; finally, seizing with my pliers

the abdomen of *Halictus*, ♀, the sting of which was well exerted, I presented it to a *Triungulin*, which at once climbed on to it. I then moved the sting up to the egg of the *Vespa vulgaris*, and had the pleasure of seeing the little larva of *Melœ* pass on to the egg.

This occurred on the 26th June. I closed the tube, and, lens in hand, followed the proceedings of my pupil. I proved that it ate or sucked the egg, and in its somewhat transparent body I could see that it absorbed the nutrition. It increased, its annulations swelled, the corneous plates of each segment which had touched each other were separated by a tender transparent skin; and at length, on the morning of the 1st July, that is, in five days, the first moult took place, the thorax was split open, and I saw an elongate larva of a citron-yellow colour with a pale head and two black eyes issue from the *Triungulin*, and rush boldly into the honey. What will become of it in this glutinous liquid so little like both in taste and odour to the nauseous honey of the *Anthophoridae*? The future will tell me; at present, five or six hours have elapsed and the larva does not seem displeased, for it swims and frisks about like a fish in water.

This is probably the first time that the rearing of *Melœ* has taken place with a feeding-bottle; I have obtained the first and second larva-forms, and I will hereafter report if the three or four other forms have also been successfully assumed.—JULES LICHTENSTEIN. (Translated from the "Compte Rendu de la Société Entomologique de Belgique:" July, 1875.)

Exportation of Humble-Bees to New Zealand—Two nests of English Humble-Bees were last week sent to New Zealand, by Mr. Frank Buckland, for the Canterbury Acclimatisation Society. These insects are specially desired in New Zealand for the purpose of fertilising the common clover; the proboscis of the common bee is not sufficiently long to reach down to the pollen of the clover flower, while the humble-bee is enabled to do so. In this way, the insect is expected to do great service to the agriculturist by largely extending the growth of the clover. The bees were packed in their own nests in two boxes, and will be under the charge of a Member of the New Zealand Council, who is provided with every necessary for their welfare during the voyage. They are expected to arrive about the middle of January—Midsummer at the Antipodes.—Extracted from "NATURE:" 14th October, 1875.

Note on Trapezonotus distinguendus, Flor, and its allies.—In his "Synopsis of the British Hemiptera," just published in the Transactions of the Entomological Society, Mr. E. Saunders puts *Trapezonotus distinctus*, D. and S., as a variety of *Pachymerus distinguendus*, Flor; but this does not exactly settle the question,—and thereby hangs a tale.

Pachymerus (P.) distinguendus was described by Flor (Rhyn. Livl., i, 266, 21, 1860) as having black antennæ, with the second joint yellowish-red in the middle (Glied 2 in der Mitte gelbröthlich). In the second volume, p. 584, he again alludes to the species, comparing it with *T. agrestis* and *T. convivus*, but says not a word about any error in his former description.

Trapezonotus distinctus, D. and S., was described in "The Entomologist's Annual," 1863, and again in the "British Hemiptera," i, 191, 1 (1865), as having black antennæ with the third joint having a broad red ring in the middle.

In the "Wiener entomologische Monatschrift," viii, 215, 14 (1864), Fieber described *Trapezonotus distinctus*, D. and S., and *T. distinguendus*, Flor, as distinct species, but both as having the third joint of the antennæ red in the middle (Glieder 3 roströthlich, am Grund und Ende schwarz). This is remarkable, for he says he had the original example of *distinguendus* from Dr. Flor for inspection.

In the "Stettiner ent. Zeit.," xix, 181, 23 (1858), Dr. Stål described *Rhyparochromus convirus* as "articulis 2° et 3° antennarum medio late flavescentibus." In the "Öfv. k. Vet.-Ak. Förhandlingar," p. 55 (1872), he repeats this, placing the species under the genus *Trapezonotus*, and adds, as a separate species *T. distinguendus*, Flor, but describing the antennæ as "articulo tertio pallide annulato."

In his "Opuscula Entomologica," ii, 192, 28 (1870), Thomson has *Lygæus convirus*, Stål, = *distinguendus*, Flor; but he says of the antennæ "articulo tertio fere toto rufo," which is not correct for either.

According to descriptions, there are four allied species of *Trapezonotus* :—

1. *distinguendus*, Flor, *nec auct.* (= *convirus*, Stål, *sec.* Thoms.).
2. *distinguendus*, Fieb., Stål, Saund., *nec* Flor.
3. *distinctus*, D. and S., Fieb. (= *distinguendus*, Flor, *sec.* Saund.).
4. *convirus*, Stål, *nec* Thoms.

The question therefore to be decided is whether the above-named are really four species or only forms of one, and I commend it to the attention of those hemipterists who have access to type-examples.—J. W. DOUGLAS, Lee: 14th October, 1875.

Notes on some species of Corixa.—In the "Öfversigt af K. Vet. Ak. Förhandlingar," 1854, Pastor Wallengren described as new four species of *Corixa* under the names of *Fieberi*, *vaga*, *variegata*, and *vernica*. Several months ago, the worthy Pastor sent an example of each for my inspection, and I having returned them to him by the hands of Dr. John Sahlberg, the latter writes that he quite agrees with my determinations, which are as follows :—*C. Fieberi* and *C. vaga* = *C. hieroglyphica*, Duf.; *C. variegata* = *C. intricata*, D. and S., which latter name will be superseded; *C. vernica* is a distinct species allied to *C. Linnei*, Fieb., but not yet detected in Britain.

In the "Notiser ur Sällsk. pro Fauna et Flora Fennica Förhandlingar," t. xiv (1875), Dr. J. Sahlberg has a monograph of the Finnish *Corixæ*, which is of interest to us, especially with regard to the British species.

C. sodalis, D. and S., is admitted to be a good species, but *C. socia*, D. and S., is put as var. *b* of *C. prausta*, Fieb.; it appears to me, however, that the differences of marking on the elytra and tarsi are sufficient to give it rank as a species in default of absolute proof to the contrary.

C. nigrolineata, Fieb., is reckoned as = *C. Fabricii*, Fieb., but I look upon this as very doubtful. *C. decora* and *C. dubia*, D. and S., are supposed to be varieties of the species thus constituted; but I now look upon *C. decora*, of which I have only the single original example, as an immature *C. perplexa*, D. and S., to which I also refer the subsequently described *C. Whitei*, D. and S., all of which have the marginal channel of the elytra pale; and *C. dubia* may be regarded as a form of *C. nigrolineata*.

C. Sharpi, D. and S., is identified as = *C. cognata*, Fieb., and the still older *C. carinata*, Sahlb.

Two new species are described, which not improbably may be found in North

Britain, viz.:—*C. Wallengreni*, like *C. fossarum*, but with the head much broader than the thorax, and rather narrower than the body, &c.; *C. pallidula*, like *C. Fabricii*, but nearly one-half smaller, head larger, colour paler, &c.—ID.: 1st October, 1875.

Note on Typhlocyba hyperici.—Yesterday, a warm and sunny day, I made the acquaintance, for the first time in life, of this pretty, shy, dusky wood-nymph in a part of Darenth Wood where, within a restricted space, *Hypericum perforatum* grows plentifully among the young underwood. For the capture of such skittish creatures as the *Typhlocybidae* an umbrella or wide net is of little use, for they fly out of it directly, so I went provided with a round butterfly-net, and by placing it under the *Hypericum* plants, and then tapping them with a stick, I had the pleasure of getting a few examples of my desideratum. Even when thus in the net, they are only half caught, for, mixed up with dry leaves and capsules of the food plant, they are not conspicuous while they rest, and when they jump the presence of four or five examples of other species, trapped at the same time, all performing the same mad antics from side to side of the net, distracts attention from the coveted one (I never had more than one such in the net at a time), and delays the moment when a quill can be put over it. I know but of two other British examples, taken by the Rev. T. A. Marshall, and the species is noted as being rare in collections everywhere, which, considering the restricted habitat, the time of appearance, and the difficulty of capture, is not to be wondered at.—ID.: 8th October, 1875.

Notes on Lepidoptera from the Isle of Man.—I had two or three days collecting at Onchan in the Isle of Man in the middle of August last, but *Lepidoptera* were very scarce, and the only two species taken, not already recorded as occurring on the island, so far as I am aware, were *Stilbia anomala* and *Crambus geniculellus*. The former flew at dusk on the cliffs, and the latter was very freely beaten out of furze bushes in the day-time, along the top of the cliffs. By shaking and collecting seed-capsules of *Silene maritima*, I secured larvæ of *Dianthæcia capsophila* and *casia*, and I think another species of the genus. Imagos of *Polia nigrocincta* and the red var. of *Cirrhædia xeramælina* were not yet out, although I sugared the rocks well for the former, and the ash-trees for the latter.—GEO. T. PORRITT, Huddersfield: October 2nd, 1875.

Notes on the Lepidoptera of the Pyrenees.—The following list of *Lepidoptera* collected at Argèles (Hautes Pyrénées), may perhaps prove of use to some of your readers. I collected there during the last week of July in this year; but, owing to the exceptionally heavy rains during the first part of the summer, which had never before been experienced by the "oldest inhabitant" of Argèles, the butterflies were not at all plentiful, and many species I expected to find were not seen at all:—*Melanargia Galathea*, abundant everywhere; *Satyrus Megæra*; *Epinephile Janira*, *Tithonus*; *Hipparchia Hyperanthus*, *fagi*, Scop., rocky places both in valleys and on sides of mountains; *Canonympha Arcania*, Lin.; *Argynnis Paphia*, *Aglais*, *Adippe*, *Lathonia*, *Dia*, Lin.; *Melitæa Athalia*; *Vanessa C-album*; *Pyrameis Atalanta*, very abundant in one shaded rocky glen, and seen nowhere else; *Lycæna Gordius*, Sulz.; *Cupido Icarus*, *Corydon*, *Arion*; *Zephyrus quercus*; *Leucophasia sinapis*; *Pieris daphidice*, somewhat scarce, *rapæ*, *napi*; *Gonepteryx rhamni*; *Colias Edusa*, not common; *Papilio Machaon*. *Very few moths were taken. Ma-

erglossa stellatarum was abundant, and literally swarmed in one small mountain churchyard. *Zygæna filipendulæ* and *Tanagra chærophylluta* were also seen in great plenty, but they did not receive the same attention as was paid to the diurnal *Lepidoptera*.—W. L. DISTANT, Streatham Cottage, West Dulwich, S.E.

Sphinx convolvuli at Putney.—I took a fine specimen of this insect on one of my windows here early last week.—H. DECASTRO, Cramlington Villa, Upper Richmond Road, Putney: 13th October, 1875.

Sphinx convolvuli at Twickenham.—A fine specimen of this insect was captured on September 30th by Mrs. Boscher of Belle-Vue House, Twickenham, hovering over a Petunia in the garden. I saw another specimen about the middle of the month in the hands of a railway porter at Red Hill Junction.—R. MELDOLA, St. John's Street, Bedford Row: October 5th, 1875.

Sphinx convolvuli at East Grinstead.—A specimen of this insect was observed, on several consecutive evenings during the latter part of September, hovering over the flower beds in the quadrangle of the Sisterhood of Saint Margaret's, at East Grinstead, Sussex.—TROYE BLACKMORE, The Hollies, Wandsworth: October, 1875.

Sphinx convolvuli at Watford.—Seven specimens of this usually scarce moth have been, to my knowledge, taken in Watford during the past few weeks. Two or three have been found at rest in early morning upon door-knockers. One, a fine male, so taken by one of our letter-carriers, has been given to me by its captor. I saw one flying over some plants of the Japan lily (*Lilium auratum*) in Mr. Clarence Fry's garden here, but failed to take it. Mr. Fry has since captured one hovering over his petunia bed, and has seen a second, which has so far escaped. One flew into a florist's shop. My friend Mr. Lawford has taken three hovering over flowers at dusk at Hitchin.—ARTHUR COTTAM, St. John's Road, Watford: October 16th, 1875.

An insect incendiary.—A large handsome Sphinx moth, generally brown, sometimes grey, called the "Iriano" (*Cherocampa Erolus*, Cramer), is common in the Hervey Islands. The head is brown, and white beneath; the antennæ white, and hooked at the tip; and the proboscis, exquisitely coiled up, sometimes attains the length of five inches. At dusk, in the warm season, they are very numerous, coming out of their hiding-places and entering the dwellings of the natives, attracted by the light inside.

In ancient times, a certain method of secretly wreaking vengeance upon a foe was, on a dry night, to catch two or three "irianos," and, after carefully unwinding their proboscis, tie on narrow strips of stout native "tapa" (cloth) lighted at one end. This cloth only smoulders, and, like touchwood, never goes out. The affrighted moths would then be set at liberty as near as possible to the dwelling of the intended victim. The "irianos" dragging through the air these strips of smouldering "tapa" would naturally make for the highly-combustible thatch. In a few seconds the house would be in a blaze; but the real offender would be at a safe distance.

To render escape impossible, the doors of the house were sometimes secured with green bark when the inmates were snoring. Pandanus-leaf thatch, when half

worn out, is peculiarly ignitable. The excuse given for the *very common* crime of house-burning in heathenism was revenge for the murder of some near relative.—W. WYATT GILL. (From the "Leisure Hour," 11th September, 1875.)

[This will doubtless remind some of our readers of the belief once prevailing in certain parts of Germany, that, according to the old Insect-fabulists, the stag-beetle carries live coals in its jaws from house to house.—E. C. R.]

Natural History of Xylina rhizolitha.—On the 26th April, 1874, I had the pleasure to receive from Mr. J. E. Fletcher, of Worcester, a few eggs of this species, which were laid on the 21st and 22nd of the month; and the larvæ were hatched on the first two days of May.

At first, and for some time, they continued to feed on the green cuticle of the tender young leaves of oak; but, as they grew, began at length to eat little holes through them.

The egg is small for the size of the moth, and in shape is spherical, but a little flattened; it cannot strictly be called ribbed, but is covered with thirty-five to forty longitudinal rows of pits in such regular order that their sides form both shallow ribs and transverse reticulations; in the centre of the upper surface is a button-like round spot ornamented with a star of nine pairs of short raised lines; the colour at first was almost white, the tinge of yellow being very slight; on the third day, this turned to dull pink, afterwards blotched and streaked with pinkish-brown, at last becoming wholly brown.

The young larva is whitish, with a buff coloured head, until after the first moult, when, by aid of a lens, opaque white dots and hairs could be discerned on it: when not quite three weeks old, the larva is half-an-inch long, of a greenish-white colour, showing distinctly the white raised dots and hairs; in four weeks, it is three-quarters of an inch long, and stout in proportion, of a rather pale bluish-green colour finely freckled with whitish, and having slight indications of dorsal and sub-dorsal lines: by this time it feeds well, eating through the leaves from the edges.

The full-grown larva measures one inch and a quarter in length, or a trifle more when stretched out in walking; it is of uniform stoutness, and cylindrical in figure, the head full and rounded, the hinder extremity also rounded, and but little tapered; all the legs are moderately well developed, and terminated by sharp hooks. The ground colour is a rather transparent pale bluish-green, appearing colder on the back and sides than it really is, from being thickly sprinkled over with minute opaque whitish freckles; these, however, are but sparingly seen on the belly, which is of a rather yellower green; the head is of a more tender green, with a patch of paler freckles on the side of each lobe; on the back of the second segment are four whitish dots; on the rest of the body the opaque whitish dorsal line is finely edged with darker green than the ground, but is so much interrupted as only to appear just at either end of each segment; the sub-dorsal shows similarly as a broken whitish line, and less conspicuous, while the spiracular line is indicated still more faintly, existing as an interrupted series of larger whitish freckles than those which besprinkle the skin; the wart-like tubercular dots are opaque whitish, each having round the base a narrow unfreckled ring of the semi-transparent green ground colour, and each bearing a fine whitish hair; the spiracles white, delicately outlined with black; the terminal hooks of the legs whity-brown.

By June 3rd, they had attained their greatest dimensions, and by the 7th had ceased to feed, and were become irritable, some having lost all their white markings and turned wholly green like the colour of the oak leaves, and by the evening they had retired into some light soil supplied to them, and where they spun up in cocoons,—and the moths appeared from September 28th to October 7th.

I found the cocoons were about three inches below the surface of the soil, and they were composed chiefly of fibrous particles spun together, and smoothly lined with pale grey silk. The pupa itself is nearly five-eighths of an inch long, and stout in proportion, being a quarter of an inch in diameter; the head and thorax rounded, the wing-covers long, the tip of the abdomen rather bluntly rounded off, having at the end a small rough knob furnished with two small spikes curving a little outwards towards their extremities; it is of a mahogany-brown colour, and very glossy.—WILLIAM BUCKLER, Emsworth: *September 30th, 1875.*

Larva of Catoptria aspidiscana.—On the 9th September, I went to Grange-over-Sands to look for the larvæ of *Scopula terrealis* on the golden-rod; having found nine larvæ about full-fed, it occurred to me that my time might be better spent in trying once more to find the larva of *C. aspidiscana* on the spot where I captured so many of the moths last May; well, I had the good luck to find a larva, which had drawn the flowers of the golden-rod together, in a slight web; though it is quite different from any *Tortrix* larva that I know, I feel quite confident it can be nothing else than *aspidiscana*, as there were only a few square yards where the perfect insect occurred. I casually met Mr. C. S. Gregson on the road-side *en route* for Witherslack, and he took a description and sketch of the larva as we sat on a stone.—J. B. HODGKINSON, 15, Spring Bank, Preston: *September 30th, 1875.*

THE LEEDS NATURALISTS' FIELD CLUB, AND SCIENTIFIC ASSOCIATION.—189th Meeting: *September 15th, 1875.*—MR. HENRY POCKLINGTON, F.R.M.S., President, in the Chair.

Mr. James Abbott reported the capture on the 5th September of *Colias Edusa*, near Adel Dam (six miles north of Leeds), by himself. Other members reported that the same species was taken in the vicinity of Kirkstall Road, Leeds, and also a specimen of *Vanessa Antiopa* in the same neighbourhood, about the beginning of September, both being now in the possession of Mr. C. W. Liversedge.—W. D. R.

Review.

Mr. Herman Strecker, of Reading, Pennsylvania, is publishing a book which he calls "Lepidoptera, Rhopaloceres and Heteroceres."

The plates are all drawn by himself, after a hard day's work, and could only be done under such circumstances by an entomologist whose heart and soul are in his work. The book is published periodically in parts (6 parts appeared in 1873), containing one plate each with descriptions, the plates crowded with well-drawn, though sometimes rather coarse, figures, and well coloured, all for half-a-dollar. Twelve parts are published, in which butterflies and moths succeed each other alternately. Two plates of the large *Saturniæ*, which are evidently the author's pets, are equal to any that have been drawn by others. Plate 10, in which are figured the "North American species of the genus *Lycana*," is a marvel, and has never been surpassed in characteristic drawing and faithful colouring. It contains 47 figures. [W. C. H.]

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS
OF NEW SPECIES.

BY G. H. VERRALL.

(continued from Page 36.)

Since my commencement of this paper, I have captured several species of *Dolichopus* and *Gymnopternus* which require noticing, and I have therefore recommenced with those genera.

DOLICHOPUS URBANUS, Meig.—Abundant at Upware, in the Cambridgeshire Fens, last July.

D. PUNCTICORNIS, Zett.—When I described *D. medicornis* (p. 32) that was the only species of the group with which I was acquainted; since then I have caught a species which I believe to be Zetterstedt's *D. puncticornis*. Its principal characters are included in the following diagnosis:

D. PUNCTICORNIS, Zett. Dipt. Skan., ii, p. 536.

: ♂ ♀. *Viridis, facie flavido-ochraceâ; antennis mediocribus, articulo primo subtus ad apicem obscure ochraceo; fronte viridi, oculorum ciliis inferioribus flavis; abdominis incisuris nigris; pedibus flavis, coxis posterioribus cinereis, tarsis nigris, anteriorum articulis basalibus flavidis apice fusco-nigris, tibiarum posticarum apice fere ad tertiam partem determinate nigro, sub-incrassato; alis sub-hyalinis, venâ discoidali leniter flexuosâ mox ante apicem alæ excurrente.*

♂. *Facie flavido-ochraceâ sub-angustâ, pedibus simplicibus, sed tibiarum anticarum apice pilum sub-elongatum ferente, hypopygii mediocris lamellis ovatis, minoribus, sordide albidis, apice et superne nigro-marginatis; costâ ubi vena sub-costalis excipit longé incrassatâ.*

♀. *Facie ex-albidâ, antennis brevioribus, tibiarum posticarum apice ad quintam partem nigro.*

From *D. medicornis* this species may be easily distinguished by its ochraceous and much narrower face, by the basal joint of the antennæ being only somewhat ochraceous at the tip of the first joint beneath—"articulo basali subtus ad apicem puncto parvo luteo agre "observando" (Zett., *l.c.*), the antennæ are also slightly shorter, and the third joint less rounded at the tip. The front coxæ bear more numerous small bristles (the front coxæ of *D. medicornis* being somewhat denuded), the front tibiæ bear a small thin bristle inside at the tip, which is rather inconspicuous, the middle tarsi are paler, having the two basal joints pale with dark tips, the hind tibiæ have nearly the apical third abruptly and conspicuously shining black, slightly dilated, and with a peculiar short groove at the tip outside; the lamellæ of the

hypopygium seem similar, but perhaps more jagged at the tip; the wings are more pellucid, the veins being less infuscated; the discoidal with a slighter flexure, ending slightly before the tip of the wing; the stigmatal swelling is very distinct, and extends for some distance.

The female may be distinguished from *D. medicornis* ♀ by the darker antennæ, paler base of anterior tarsi, more darkened tip of hind tibiæ, and by the much narrower epistoma.

The only points in Zetterstedt's description which cause the slightest doubt as to the species are the size, which he calls as much as in *D. trivialis*, while my specimens are distinctly smaller; and a remark which he makes under his description of *D. consobrinus* (D. S., xiv, p. 5050) = *maculicornis*, Ver., concerning the flexure of the discoidal vein, which he calls "sub-geniculato," while my specimens are almost "leniter flexo." *D. puncticornis* has hitherto only been recorded rarely from South Sweden by Zetterstedt, and "in Germany up to the Alps" by Loew. I found it tolerably abundant at Upware in July this year.

D. MEDICORNIS, Ver.—I caught two females of this species at Fawley on June 21st; the darkened tips of the middle tibiæ seem to be a good distinctive character. The front coxæ of the male are somewhat denuded.

D. LINEARIS, Mg.—I caught two males of this rare species at Upware in July this year.

D. STRIGIPES, *sp. n.*

♀. *Æneus, sub-nitidus, facie angustâ candidissimâ, fronte cæruleo, oculorum ciliis inferioribus albidis, antennis brevibus luteis apice nigro-fusca, pedibus sordide luteis, coxis anticis basi, posterioribus totis cinereis, trochanteribus luteis, tarsis nigro fuscis, basi obscure luteis; squamis pallide-ciliatis; alis sub-hyalinis, venâ discoidali lenissime flexuosâ, fere in apicem alæ excurrente.*

Long. 2 lin.

♂. *Pedibus sordide luteis, femoribus præsertim posticis intus strigâ longitudinali fuscâ, tarsorum anticorum articulis subtus extremo apice cæalbidis; hypopygii lamellis flavidis, immarginatis, pallide ciliatis, apice obscuris, ciliis nigris, subtilis (latere a ventre remoto) stylo longo apice obscuro, pilis longis nigris ad apicem duobus altero in medio gerente, instructis. Costa ubi vena sub-costalis excipit vix incrassata.*

It is difficult to locate this new species in the genus, as I can scarcely say to what species it is allied; taking the groups into which the genus is commonly broken up, it evidently belongs to those species with yellow femora, cilia of the lower orbit pale, antennæ chiefly yel-

lowish, legs simple, antennæ short, discoidal vein only slightly bent, middle tarsi not silvery at the tip, wings without any dark blotch, and hind femora not (or scarcely) bearded. This leaves *D. simplex*, Meig., *linearis*, Meig., *agilis*, Meig., *modestus*, Wahlb., and perhaps *parvicaudatus*, *inconspicuus*, and *exiguus*, of Zetterstedt. From all these it is easily distinguished by its yellow fringed alulæ (one specimen has two or three black hairs on each alula), and by the peculiarly furcate lamellæ of the hypopygium, which bear a long narrow fork on their under-side (*i. e.*, the side away from the belly, when the hypopygium is in its usual incurved state); this fork begins a little before the middle of the lamella, and runs parallel to it, extending to about the same distance, it bears two long black hairs at or near its tip, and one or two at about half its length; the other part of the lamella is somewhat triangular, running to a sharp, jagged, blackish point. The thorax is æneous, with two bluish longitudinal lines and a bluish scutellum; the antennæ are short for a *Dolichopus*, luteous, with the greater part of the third joint blackish, and with the upper side a little darkened; the face is narrow, and silvery-white; the frons is shining blue (as in some species of *Xiphandrium*); the legs are darkened by the abundant small bristles, the front coxæ are luteous, glossed with silver in front, denuded outside, but bristly inside and in front, their base is all greyish, the hind coxæ are blackish-grey, all the trochanters being luteous; the femora, especially the hind pair, bear a dark streak nearly all along their inner side, and about the darkened part of the hind pair the bristles sometimes almost approach a beard in appearance, the hind femora are faintly darkened at the tip, bearing only one spine behind; the tibiæ all bear long bristles down their outside, the hind pair are altogether darkened, but not more so at the tip; the basal joint of the hind tarsi bears two long bristles above, and the front tarsi seem slightly compressed, having the extreme tips of the joints whitish beneath and faintly dilated, giving the idea of a ♂ *Tachytrechus*; the wings are almost hyaline, the discoidal vein being only very slightly bent (I know no *Dolichopus* having it so slightly bent), the stigma is slight and inconspicuous.

The female I did not succeed in capturing, or I have failed to distinguish it from that of *D. sabinus*; it should differ by its larger size, paler wings, &c. I caught five males at Fawley in Hampshire on June 21st this year.

GYMNOPTERNUS GRACILIS, Stan.—This beautiful golden-green species abounded at Upware last July. •

G. CHRIZOZYGOS, W.—This well-known European species was, I think, the commonest of the *Dolichopodidæ* in the Cambridgeshire Fens last July; scores might be seen in every little roadside ditch. The pretty ringed black and white front tarsi, the yellow antennæ and face, and the dark hind tibiæ, easily distinguish it. The great abundance of this species (never previously recorded as British), and of *G. gracilis*, only known to Haliday from specimens in Curtis's collection labelled Thetford in Norfolk, induces me to think that nobody has ever previously collected *Diptera* in the Fens.

G. ASSIMILIS, Stæg.—This little species occurred tolerably freely in a marshy spot in an old quarry near Upware.

TACHYTRECHUS NOTATUS, Stan.—I fancy some mistake has occurred in the 'Insecta Britannica' with regard to the localities of the *Tachytrechæ*. *T. notatus*, which is there apparently considered the commonest, I have captured at Aberdeen, Braemar, and Fawley.

T. CONSOBRINUS, Wlk.—This is recorded as only occurring in Mr. Haliday's collection from "Moory uplands of Wicklow;" I have, however, caught it in abundance on the muddy sides of ponds near Lyndhurst and Fawley, and also met with it one day at Braemar. The third British species, *T. insignis*, Stan., I have not yet met with, while *T. ammobates*, not having yet been found anywhere in Britain, is better omitted from our lists.

ORTHOCHILE NIGROCERULEA, Ltr.—I have found this rare species at Lee and Leigh.

HYPOPHYLLUS CRETIFER, Wlk.—I caught this species abundantly on stones in a stream close to Penzance, and also near Truro.

ANEPSIUS FLAVIVENTRIS, Mg.—The New Forest seems to be the chief home of this insect, as I have met with it there nearly every summer, and sometimes in abundance; I have also a specimen from Weybridge.

ARGYRA CONFINIS, Zett.—I caught a male of this at the Crystal Palace on June 14th, 1867.

SYNTORMON ZELLERI, Lw.—Two females, caught at Landport, near Lewes, were so named by Loew, but I consider identifications from females only very uncertain.

S. DENTICULATUS, Zett.—I found this species abundant in the

Plashett Park, near Lewes, on August 4th, 1872, and also caught some females this spring, on April 17th, at Blackboys, near the centre of Sussex.

S. PUMILUS, Mg.—I have collected this sparingly in the New Forest, at Upware, and at Aberdeen.

S. TARSATUS, Fall.—This species abounds on Scotston Moor, near Aberdeen, and I saw it near Inverey, Braemar.

S. ŒDICNEMUS, Lw.—When at Rannoch, I caught several specimens of a *Syntormon*, which I thought was undescribed; and, still failing to identify it when I caught both sexes at Braemar, in some notes in the Scottish Naturalist on the *Diptera* at the latter place, I referred to it as being in my collection under the MS. name of *S. crassipes*. A critical examination of it, with a view to description, and a comparison of the descriptions of all the European species, enabled me at last to refer it to the little-known *S. œdicnemus*, Lw. The following are some of its characters:—

Dark green, face narrow, more so from the middle downwards, silvery-white, palpi brown; frons shining green; antennæ long, the third joint outside below being more than three times as long as the other two, for more than half its length it is rather broad (more than one-third its own length), but then rather suddenly narrows to about one-third its previous width, running almost to a point, from which springs the stoutish arista, which is about two-thirds the length of the third joint, the joint itself bears a dense and rather long pale brownish pubescence, and the arista is distinctly, though minutely, pubescent, the first joint has one or two small bristles on its disc above, and the species must therefore belong to the genus *Syntormon*; the cilia of the lower orbit are whitish; the thorax is dark green, the breast-sides greyish, the pleuræ pale-haired, the abdomen is coppery-green, the pubescence near its base pale, the genitalia are rounded, small, and almost concealed, the rounded knob bears pale hairs behind. The legs are yellow, front coxæ yellow with some whitish, and one (or two) black bristles, the hind coxæ dark grey, with the tips and trochanters yellow, the usual few black bristles on the middle pair, and one on the hind pair, the posterior coxæ all with some whitish hairs, front tibiæ with one bristle in front about one-third of the way down, front tarsi pale at the base, middle femora with one bristle in front and one behind near the tip, middle tibiæ sometimes dark at the tip, with three bristles down the outside besides the apical one, and one behind just below the first of those on the outside, one near the third, and one larger one in front near the third, middle tarsi pale on the basal half of the first joint, or sometimes all black, hind femora black at the tip, and hind tibiæ all blackish except the darkish luteous base; the femora bear one bristle behind and about three beneath near the tip, the hind tibiæ gradually dilate from base to tip, they are rather compressed from the sides, considerably bristly, with three large bristles down the outside (besides the apical) and an approach to a ciliation inside, the sides are channelled, the basal joint of the black tarsi is slightly thicker than the

rest, and slightly shorter than the second, beneath about its middle is a solitary rather long bristly-looking hair, thicker in the middle than at its base or tip, generally directed slightly backwards (*i. e.*, towards the base of the tarsus), and with the appearance of simply hanging on, the other bristles are slightly more developed than usual, especially one or two. Wings rather greyish-hyaline, third and fourth veins only slightly approximating.

♀. Face broad, greenish with pale tomentum, frons brilliant purple in the middle, steel-blue at the sides; alulae black-haired; cilia of the lower orbit with a tendency to form a beard; antennae short, rounded; belly pale haired; legs paler, front coxae and base of femora considerably darkened, hind trochanters blackish, hind femora slightly infuscated at the tip; hind tibiae shorter and thinner than in the male, altogether pale, with rather numerous small bristles, even base of tarsi pale.

S. ædienemus is therefore easily distinguished from *S. tarsatus* by the absence of the conspicuously dilated tibiae and tarsi; from *pumilus* by the absence of the bristles at the base of the anterior femora, and by the simple anterior tarsi; from *Zelleri* by the simple front tarsi; from *denticulatus* by the unarmed middle femora; from *Synarthrus monilis* by the simple middle tarsi; and from *pallipes* by its dilated hind tibiae and different armature of the basal joint of the hind tarsi. The first and only description of *S. ædienemus* is of the male only, in Loew's *Neue Beiträge*, vi, p. 15 (1859), and in this are some serious divergences from my description; I fancy, however, they occur in Loew's description from insufficiency of material to describe from. In the first place, he calls the species a *Synarthrus*; he, however, admits himself doubtful on the point, and I am quite sure of the presence of bristles on the upper-side of the first joint of the antennae in my specimens; he describes all the legs as darker, but scarcely more so than in the darkest of my specimens; and he speaks of the basal joint of the hind tarsi as "*subtus setulis duabus divergentibus armatus.*" At first, I was almost inclined to think the last point conclusive against the identity of the species, but I now think Loew has unduly rated one of the more developed bristles beneath the basal joint of the tarsi; he also slightly differs in describing the bristles on the middle tibiae, besides other minor differences. He gives no locality for *S. ædienemus*, but leaves Germany to be understood. I expect it is not rare in Scotland, as each of my visits there has produced it.

SYNARTHROS MONILIS, Wlk.—I have caught this little-known species rather freely at Lyndhurst and Ringwood about the end of June. The male has the face white, the front femora dusky above, the front tibiae with a row of small spines all the way down, the basal joint of the front tarsi pale, dark and bristly at the tip, the other joints short and bristly; middle tarsi with the three basal joints pale,

their tips darkened; hind tarsi all black, the tooth under the basal joint longer than in *S. pallipes*, and more ciliate at its end; the front coxæ are yellow, with the base grey, the arista is slightly dorsal. In the female, the arista is conspicuously dorsal, thus readily distinguishing it from any species which has the second joint of the antennæ protruded into the third; it is also smaller than the male, with all the femora yellow.

XIPHANDRIUM.—Of this genus, *caliginosum* and *appendiculatum* seem very common; these two and *monotrichum* have the frons blue in both sexes, but the black bristles on the coxæ of the last are 0, 1, 1, and in the others 2, 2, 1, thus easily distinguishing the female of *monotrichum*. I have only found *monotrichum* in the New Forest; *brevicorne*, which I have caught at Penzance and Bournemouth, has the frons glossed with white in both sexes, and no black bristles on the coxæ; *fasciatum* and *fissum* I have not seen, but I have found one species new to Britain, in: —————

X. AUCTUM, Loew, of which I caught one male at Lyndhurst on June 23rd, 1873. It is closely allied to *monotrichum*, but the appendages have not the long solitary hair, the joints of the tarsi differ slightly in relative length, it is half as large again, and in my specimen I make out the black bristles on the coxæ 3, 1, 1. It has previously been recorded from Germany and Austria, but is not well recognised.

PORPHYROPS PECTINATUS, Lw.—I captured a male and two females of this near Kew in 1869; it is a well marked species, with a black face and beard, broad frons, front coxæ with black pubescence, bristles behind front femora strong and regular, all black, the basal joint of the front tarsi nearly twice as long as the second joint, the hind femora yellow, with the apical fourth black, the hind tibiæ yellow.

P. CONSOBRINTS, Zett.—In this species, the face is silvery-white, the beard white, the frons rather narrow, the front coxæ with white pubescence, and the bristles on the front femora less strong and regular than in *pectinatus*, and with some pale hairs intermixed behind; the basal joint of the front tarsi is stout and slightly longer than the second, the other three short, the second is a little bent, and thick at the base, with minute erect hairs beneath, the middle femora are thin with fine pale pubescence beneath, the hind femora are all black, the tibiæ dusky, blackish at tip; tarsi much shorter in proportion than in *pectinatus*. The female differs from that of *pectinatus* by the duller yellow, narrower face and frons, and white beard.

(To be continued).

NOTES ON *ANISOTOMIDÆ*, WITH DESCRIPTIONS OF THREE NEW SPECIES (FROM SCOTLAND, SIBERIA, AND ALGIERS).—No. 2.

[*cf.* Ent. Mo. Mag., x, pp. 131—136.]

BY E. C. RYE, F.Z.S.

ANISOTOMA OBLONGA, ♀, Erichson, Ins. Deutschl., iii, p. 53, note ; E. C. Rye, Ent. Mo. Mag., vii, p. 180 ; *id.* Ent. Annual, 1872, p. 65.

Since my record of the two British examples above quoted (one of which was returned to me by Dr. Kraatz as probably this species), I have seen a third specimen, taken in the Manchester district. These three are, as was Erichson's insect, of the female sex ; they agree perfectly with each other, and with Erichson's description, with the additional character that the larger punctures on the 1st, 3rd, 5th, and 7th interstices of the elytra are, compared with *A. cinnamomea*, much coarser and more numerous. I have recently examined a fourth specimen, taken at Farnham, Surrey, in September last, by Mr. G. C. Champion, which is of the male sex, and is in my opinion undoubtedly also to be referred to *A. oblonga*, of which the ♂ has not yet been described. This individual, like the three ♀ examined, differs from *cinnamomea* in its smaller size, more elliptical outline, and shorter antennæ, of which the club is lighter ; in its thorax having less strongly rounded sides, with more obsolete front- and less obtuse hind-angles ; and shorter and proportionally broader elytra, with interstitial punctures as above noted. Erichson's suggestion that the ♂ may be still more easily separable than the ♀ from *cinnamomea* is correct. I add the male characters:—

Mus, tarsis anticis mediisque leviter dilatatis ; femoribus posticis apicem versus fortiter dilatatis, apice subtus profunde lateque emarginato (angulis obtusis, nec denticulatis) ; tibiis posticis paulo elongatis incurvatisque, haud incrassatis.

Compared with ♂ *cinnamomea*, the middle tibiæ are not abruptly dilated and incurved in the lower half, but merely a trifle stouter than in the ♀ ; the hind femora are more dilated towards the apex, but the angles of the apical emargination on the lower side are not only not denticulated, but distinctly rounded off, there being no tooth of any kind to the femur, the lower edge of which is simply irregular in outline ; and the hind tibiæ are less elongate, and less thickened and incurvate towards the apex. Erichson says that the middle tibiæ of *cinnamomea* have a sharp tooth on the inner side near the base, but I find no such tooth in my largest and most highly developed example of that species ; he probably mistook the toothed and projecting apex of

the trochanter for this. The middle trochanters are not produced or spined in the ♀ *oblonga* now being described; and its hind trochanters are, compared with *cinnamomea* of equal size, much less projecting and sharp.

The entire absence of any apical angular tooth in the hind femora at once distinguishes this species from *A. grandis*, ♂.

Apart from other points, there can here be no question of the species being founded on a minor degree of development, as one character of *A. oblonga*, viz., the dilatation of the hind femora, is actually in excess of the same structure in even larger *cinnamomea*.

ANISOTOMA CURTA, Fairmaire, Faune Ent. Franç., Col., i, p. 315.

This fine species must be added to the British list. I have examined two specimens (which have been corroborated by M. Ch. Brisout), one, a well-developed ♂, from Dr. J. A. Power's collection, taken by the Rev. J. Landy Brown, of Norwich (I presume, near that city), and the other by Mr. Champion at Esher, in September, 1873. The species was originally described from a single ♂ example, taken near Paris; but M. Brisout informs me that it is very common in winter on the sandy coasts of Normandy, and that he has also found it in sandy woods near Paris. Evening sweeping at Deal will probably, therefore, produce more British specimens. It is in the same section as *A. dubia*, equalling the largest examples of that species in size ($1\frac{3}{4}$ lin.), from which it may be distinguished by its rather longer build, the much stronger punctuation of its thorax, the sides of which are more contracted behind, the finer and closer punctuation of the striæ of its elytra, and by the apical joint of its antennæ being distinctly not so wide as the penultimate joint. The ♂ characters are much as in *dubia*, except that the hind tibiæ are not so elongated and are not biarcuate. Fairmaire specifies the very fine punctuation of the interstices of the elytra as a diagnostic character, but there appears no difference between *curta* and *dubia* in this respect.

ANISOTOMA CLAVICORNIS, *sp. n.*

Ovalis, convexa, ferrugineo-testacea, thorace minus crebre punctulato, basi truncato; elytris sat grosse haud profunde punctato-striatis, interstitiis evidenter punctulatis, punctis nonnullis majoribus quoque impressis, postice sat abrupte contractis; tibiis anticis apicem versus modice dilatatis, haud linearibus; antennis brevibus, thoracis medium haud superantibus, articulo 3° quam 2° paulo longiori, 4°—6° gradatim latioribus, transversis, clava concolori, gradatim latiori, articulis 2 penultimis valde transversis, ultimo dilutiori, magno, præcedenti latitudine æquali, globoso-acuminato.

Habitat Scotiam.

Long. 1½ lin. (Anglic.).

Mus latet.

A single specimen, in Dr. Sharp's collection; taken in flood-refuse on the banks of the Nith, near Thornhill, Dumfries, October, 1873.

The structure of the antennæ at once distinguishes this species from all others known to me. These organs are very short (suggestive of *Cyrtusa*), gradually widened towards the apex, with the 4th, 5th, and 6th joints unusually small, and the apical joint, though short, as wide as the two preceding (which are very transverse), and forming a capitulum larger than in *A. ovalis*.

The thorax is evenly rounded at the sides, and almost truncate in front, with the anterior angles much rounded off; its surface is delicately and not very closely punctulated; the elytra are coarsely, but not very deeply, punctate-striate, the punctures being not so sharply defined as, but larger than, in *A. dubia*.

ANISOTOMA BAICALENSIS, sp. n.

Oblongo-ovalis, modice convexa, ferruginea; antennarum clavâ magnâ, concolori, articulo apicali præcedentibus angustiori; prothorace vix transverso, basi truncato, antrorsum angustato, lateribus haud rotundatis, crebre fortiter punctato; elytris punctato-striatis, interstitiis, vage subtiliterque transversim strigosis; tibiis anticis linearibus.

Long. $1\frac{1}{2}$ *lin.* (*Anglic.*). *Habitat* Lake Baikal, S. E. Siberia.

Mas latet.

A single ♀ specimen, from Dr. Sharp's collection.

This species may be briefly described as the equivalent to *A. rugosa*, in the section with linear front tibiæ. Apart from the tibial character, it differs from *rugosa* in its rather smaller size and more oblong form, unicolorous antennal club, longer and more strongly punctured thorax, of which the sides are not dilated, but contracted in almost a straight line from the base to the apex (the hinder angles, though obtuse at the point, being almost rectangular), in the punctures of the striæ of its elytra being not quite so closely packed, and the transverse strigosities of the interstices also not so close, the whole surface being more shining.

From *A. hybrida*, it may be at once known by its shorter form, flatter build, lighter colour, more strongly punctured thorax, coarser striæ, &c.

The elytral punctuation in this species is quite unlike that of *A. multipunctata* and *circinipes*, mihi, from Japan; and *A. lateritia*, Mann., from Sitkha, differs at once from it in its transverse thorax, dark club, &c.

ANISOTOMA ALGIRICA, sp. n.

Oblongo-ovalis, ferrugineo-testacea; antennarum clavâ tenui, concolori, articulo apicali præcedentibus latitudine æquali; thorace crebre

vix visibiliter punctulato, basi truncato; elytris concinne haud profunde punctato-striatis, interstitiis parce obsoletissimeque punctulatis; tibiis anticis linearibus. Long. 1 lin. (Anglic.).

Mas, femoribus posticis dilatatis, apice subtus acute denticulato.

Habitat Algeriam.

Somewhat similar to a very small pale specimen of *A. calcarata*, from which the apical joint of its antennæ being equal in width to the penultimate joint, its more slender club, more obsoletely punctured thorax, of which the base is not sinuate, &c., will readily distinguish it. From *A. scita*, which it apparently most resembles, it differs in the shape of the thorax, of which the sides are evenly rounded to and from the middle (instead of being straight to the middle and then contracted in front), its less deeply punctured striæ, and the under angle of the femoral dilatation in the ♂ not being rounded off. This latter character alone will suffice to distinguish it from the smallest and most feebly developed *dubia* or *ovalis*.

Taken by Mr. Rippon in Algiers.

ANISOTOMA LITURA, Stephens (*ornata*, Fairm.), var. *maculicollis*.

A specimen from Algiers, in Dr. Sharp's collection, exhibits such extraordinary coloration, that I have given it the above name. It is a very large and broad female, with the dark sutural striæ and lateral streaks more deeply marked than in any Scotch example (I have taken many of this species in the South, but they are always of the pale form), and with wide suffused testaceous lateral margins to the thorax, leaving the centre only broadly black.

In my most highly coloured Scotch specimens, there is, at most, a small testaceous portion at the hinder angles.

The ordinary pale form of *A. litura* is in Dr. Sharp's collection from Bigorre, and *Hydnobius strigosus* from Algiers; *Cyrtusa pauxilla* and *Colenis dentipes* from Reynosa (Spain), the latter also from Bigorre and Albertville; and *Anisotoma pallens* and *Triarthron Merkeli* from Albertville. Unusually large specimens of *T. Merkeli* have been taken in the New Forest by Mr. Oliver Janson, and Mr. E. Saunders and Mr. Champion have also found this rare species at Woking. *Anisotoma macropus*, mihi, has again occurred to Mr. Champion at Esher, and at Balcombe, near Tilgate Forest, by sweeping in August under fir-trees; Mr. Marsh has taken *A. brunnea* flying at Mickleham, in September; and *A. lunicollis*, mihi, has come under my notice from different quarters,—viz., one specimen detected by me in Dr. Power's collection, taken many years ago near the Ribble, Lancashire; two old specimens in Mr. G. R. Waterhouse's collection; and another, taken in June last at Forest Hill, by Mr. Marsh.

• Parkfield, Putney:

October, 1875.

NOTES ON BUTTERFLIES FROM BOLIVIA, WITH DESCRIPTIONS OF TWO NEW SPECIES.

BY W. C. HEWITSON, F.L.S.

I received, some time since, what he calls a small collection (800 butterflies) from Mr. Buckley, from Bolivia, and as I do not intend to describe the new species (about 30) until the next arrival, with the exception of those now sent, I propose to give a very short summary of its contents. Amongst the new species is a *Morpho* of the *Automedon* group, a new and large *Pieris*, several new *Ithomiæ* and *Erycinidæ*; and, amongst those previously known, and quite as interesting to myself, he sends *Morpho Iphiclus* of Felder, which he was compelled to shoot from the high trees; a fine series, and in great perfection, of the hitherto rare *Junonia jucunda*, the very beautiful *Apatura Lavinia*, and the remarkable *Pandemos Areuta*, figured in the "Genera." He sends, too, an abundance of *Morpho Aurora*, and further examples of *Morpho Godarti*, which were the pride of his former collection.

PAPILIO XYNIAS, *sp. n.*

Upper-side: male, dark brown. Anterior wing with a large pale green bifid square spot on the middle of the inner margin. Posterior wing dentate, with a short linear tail in continuation of the third median nervure: three (sometimes one or two only) oval carmine spots between the inner margin and the third median nervure: a sub-marginal series of four narrow lunular green spots.

Under-side: as above, except that there is a carmine spot at the base of the anterior wing, and three similar spots at the base of the posterior wing, and that there are five carmine spots on the posterior wing, and nearer the outer margin. Exp., $3\frac{9}{10}$ inch.

Near to *Euryleon* and *Xeniades*; nearest probably to *Harmodius*.

PREPONA XENAGORAS, *sp. n.*

Upper-side: male, dark brown. Both wings crossed at the middle by a broad purple band, and by a sub-marginal series of orange spots, two of which, on the posterior wing, are in the form of black ocelli bordered with orange, and placed near the apex and anal angle.

Under-side: rufous-brown. Both wings crossed before the middle by two bands of silvery-white bordered with black. Anterior wing crossed beyond the middle by a zig-zag black band. Posterior wing with the two ocelli of the upper-side, but of a brilliant blue with white pupil, and iris half-orange, half-white: the space between them and the band irrorated with white. Exp., $3\frac{8}{10}$ inch.

Upper-side of *Deiphile*, under-side (with very little difference) of *Gnorima*.

Oatlands, Weybridge: October, 1875.

BRITISH HEMIPTERA—DESCRIPTION OF *SEHIRUS PICIPES*, A NEW BRITISH SPECIES.

BY EDWARD SAUNDERS, F.L.S.

SEHIRUS PICIPES.*Cydnus picipes*, Fall., Mon. Cim., 51, 4; Hem. Suec., i, 20, 5.*Gnathoconus costalis*, Fieb., Eur. Hem., 366, 2.

I am glad to be able to add this to our list of British *Hemiptera*; it is closely allied to *S. albomarginatus*, Fab., with which it is not improbably mixed in some collections. Dr. Power, the other evening, shewed me a few specimens found in the neighbourhood of Esher and Weybridge, by himself, which he had put aside as distinct from *S. albomarginatus*, and from one of them I make the following diagnosis:—

Black, shining, deeply and rugosely punctured. Head scarcely notched in front, extreme lateral margin of the elytra to a little below the middle, ochreous-brown; membrane milky-white. Antennæ with the apical joint scarcely longer than the 3rd; legs black, tarsi paler.

Length 2 lin.

Distinct from *S. albomarginatus* by the narrow and darker margin to the elytra, the pale colour of which does not extend on to the corium adjoining, and is only visible on the basal half; also by the much less notched head, the shorter apical joint of the antennæ, and the pale membrane.

2, Spencer Park, Wandsworth:

November 4th, 1875.

[I find that I have this species among some unexamined examples taken many years ago by Mr. Wollaston at Mablethorpe, Lincolnshire.—J. W. D.]

BRITISH HEMIPTERA—AN ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

NABIS RUGOSUS.

Cimex rugosus, Lin., F. S., 246, 916 (1761). *Nabis dorsalis*, Duf., Rech., 62, 1, t. 5, fig. 55 (1833). *Nabis brevis*, Scholz, Arb. u. Veränd., 112, 2 (1847); Fieb., Eur. Hem., 160, 3 (1861). *Nabis fuminervis*, Dahlb., Vet. Ak. Handl., 224 (1851). *Nabis rugosus*, Reut., Öfv. Vet. Ak. Förhand., 74, 6 (1872). *Nabis rugosa*, Muls. and Rey, Pun. Fr., iv, 96, 6 (1873).

Pale testaceous. Head with a broad, fuscous-black, outwardly bi-dentate vitta extending from the red ocelli to the base of the middle lobe of the face, outwardly

margined by a deep black line; the prominent middle lobe margined by a black line; the sides of the head before and behind the prominent black eyes, broadly fuscous. *Rostrum* testaceous with a black line outside. *Antennæ* testaceous, 1st joint with a fine black line on the inner side, 2nd black at the extreme base, the apex, and the 3rd and 4th joints, wholly fuscous-black.

Pronotum long-trapezoidal, anteriorly annuliform; the middle portion long, convex; the posterior third on its front somewhat depressed, then slightly convex transversely; down the middle throughout is a fuscous vitta which, on the middle portion only, is widened and has a fine yellow line down its centre, the exterior being sharply defined by a fine deep black straight line which begins and ends with a black dot; from the lower end a thin black line curves upwards and outwards, and defines a conspicuous pale spot, and, generally, another similar, but darker, one exterior to the first, thus forming a figure somewhat like ∞ : and sometimes the whole of the middle portion of the disc is also enclosed within a continuous, irregularly angulated, delicate black line: the short anterior annulus has also a rather broad fuscous vitta close to the sides, and the posterior portion a similar vitta (sometimes two) between the middle one and the posterior angles. *Scutellum* black, with a long comma-shaped pale spot on each side of the middle, but leaving the small basal angles black. *Elytra* as long as the abdomen in the ♂, scarcely so long in the ♀; *clavus* more or less infuscated; *corium* long, nerves prominent, pale, margined more or less with fuscous; on the 1st, beyond the middle, a long black spot, another at the posterior junction of the 1st and 2nd nerves, and a third, smaller, on the membrane-suture: *membrane* short, pale, with broad fuscous nerves. *Wings* (in my examples) rudimentary. *Sternum* black in the middle. *Legs* testaceous; thighs, on the sides, with black dots in rows, the first pair, outwardly, having also transverse brown lines; joints of the *tarsi* at the extreme apex, and the claws, black.

Abdomen, above, reddish-fuscous, the connexivum pale, with a basal pale red streak; beneath, clothed with fine whitish pubescence, a middle line and the sides broadly fuscous-black.

Length, 3—3½ lines.

In colour like *N. ferus*, but broader, shorter, elytra not so long, antennæ much longer, &c.

Distinguished from *N. ericetorum* by the pale testaceous colour, the broader form, the conspicuous light nerves of the corium, the slightly longer antennæ, &c., and the different habitat. According to Reuter's figure, there is also a slight difference in the form of the *hamus* of the genitalia of the male.

I have only recently found this species among herbaceous plants at Lee and Darenth Wood, but I have no doubt it is generally distributed. I have never found it among heath, where only *N. ericetorum* plentifully occurs.

In the "British Hemiptera," *N. ericetorum*, Scholz, was described, following Fieber's suggestion, under the prior name *N. dorsalis*, Duf.; but, as it has since appeared that there are two distinct species indicated by these names, and *dorsalis* (which Reuter, *l. c.*, has given valid reasons for considering to be *Cimex rugosus*, Lin.) is British, it is necessary now to describe it.

Notes on insects at St. Helena.—The following brief notes of the entomological results of six weeks' stay in this island may not be uninteresting. Mrs. Wollaston and I are staying at Plantation House, some 1800 feet above the sea, and commanding, within an easy ride of an hour and a half (on the back of either a pony or donkey), the uncultivated district, still covered with cabbage-trees and tree-ferns, of the great central ridge. This is so generally covered in with cloud, that even now it is almost impossible to reach it more than about two days in each week.

Our object being exclusively to investigate the Fauna of St. Helena, we shall probably remain on until at least the middle of December, and then make for Madeira. As might be expected in such an isolated spot (some 1,200 miles from the nearest continental land), species are decidedly scarce, and the gaps prodigious,—whole families (almost universal) being totally unrepresented. Yet the fauna is precisely what I felt sure it would be (*i. e.*, so far as the *Coleoptera* are concerned); variations of some half-dozen forms occurring, which are so monstrously developed that we never ride up to the cabbage-tree ridge without getting new ones. This (from the few eccentric species which had been sent home from time to time) I always anticipated would be the case,—*Microxylobius* (of the *Cossonidæ*) reigning supreme, followed by *Notioxenus* and *Homœndera* of the *Anthribidæ*, and *Nesiotes* of the *Synaptonychidæ*; all of them *Rhynchophora*. A few anomalous little creatures of other groups have of course turned up, but they are quite the exception,—such as a diminutive *Trechus* scarcely larger than a *Meligethes*, two or three minute *Bembidia*; and in *Hymenoptera* a small creature, apparently unable to fly, which has its wings of a velvety consistency, the hinder pair being reduced to narrow strips, or filaments, whilst the front ones are not only large and carried erect over its thorax, but pedunculated at the base, and formed towards the apex into complete *spoons* (deep, regular, and concave). It is altogether a wonderful insect, and resides in the wet moss which pads the faces (at a high altitude) of perpendicular rocks. A few curious looking bugs have also come to light in the central districts, including a beautiful genus allied to *Salda*. The *Lepidoptera* are the special department of Mrs. Wollaston, and I do not attempt to touch them; but I think she has obtained at least 60 species already,—chiefly *Pyralidæ* and *Tineina*. Of butterflies there seem to be only four species,—the common *Cynthia cardui*, *L. bætica*, a big *Danais* (found also at the Canaries and Cape Verde), and a large black and white tropical form. At any rate, in *both* orders we have exceeded (in point of number) Mr. Melliss' list, which is at least hopeful, his lately published catalogue being the result of many years' collecting in the island. My number of species hitherto does not exceed about 130, and I am doubtful whether I shall bring it up above 200 before we go.—T. V. WOLLASTON, Plantation House, St. Helena: October 19th, 1875.

On the capture of a South American wasp (Polistes bipustulatus, Saussure) near Liverpool.—During an excursion of the Liverpool Naturalists' Field Club last summer, a specimen of *Polistes bipustulatus* was found by Mr. W. H. Mountfield about eight miles from Liverpool, near Ince Blundell, a locality about a mile from the nearest shore, and quite away from all houses and docks. The insect was caught in a dry sandy situation, and, although the species is undoubtedly an importation, the question arises as to the possibility of the specimen caught being one of a brood developed in this country. The nests of *Polistes* are exposed, consisting of a single comb,

which is circular, varying in diameter, in the different species, from about four to seven or eight inches; they are attached to all kinds of substances,—branches of trees, posts and rails, window-frames and cornices of rooms, and frequently they are found attached to stones: in fact, their situations are innumerable. An allied species to *P. bipustulatus* was taken at Penzance by the late Miss Carne, who observed some numbers of it during two seasons; but she ascertained that they came from Brazil, on ships laden with raw hides. The same species was also found in London, in docks and dock warehouses; and specimens were sent to me taken at Liverpool in a wool warehouse. Accounts of these captures appeared in the *Entomologist's Annual* for 1868 and 1869.—FREDK. SMITH, British Museum: *October, 1875.*

Note on the habitat of Typhlocyba aurovittata.—When I described this species (p. 76 *ante*), I was unable to say precisely from what tree or plant I had taken it, but, recently, at the same place where I made the original capture, I have traced the species to the oak, having beaten examples from oak-bushes growing in the hedges, and from them only. Fieber gives “Anglia” as the country from which he had the species, and I believe it was one of my original examples he had before him when he proposed the name “*aurovittata*.”—J. W. DOUGLAS, Lee: *22nd Oct., 1875.*

Sphinx convolvuli and Dianthæcia albimacula at Folkestone.—*Sphinx convolvuli* has been unusually abundant this year. One man brought me five in a box, that he had just caught in his hand over a bed of petunias during a shower of rain. He said he had caught ten in all.

Dianthæcia albimacula too has been abundant; I am surprised not to have seen notices of its capture. I fear it has got into the hands of the dealers. But a large number have been caught, I believe, at Folkestone. My friend Mr. Blackall took six in half-an-hour one evening. But we only discovered the locality when it was getting too late. Nightly visits had been evidently paid for a long time past to the spot.—HENRY ULLYETT, Folkestone: *November, 1875.*

On the habits, &c., of the larvæ of Eupithecia togata.—On September 6th, Sir Thomas Moncreiffe, Mr. Wm. Herd, and I started for a locality where *Eup. togata* has occurred tolerably freely, with a resolute determination not to return home till we had found the larva and made ourselves thoroughly acquainted with its food-plant and habits.

The perfect insect always occurs in the neighbourhood of spruce-fir trees; to the spruces therefore we directed our attention. Long did we carefully scan the twigs. Diligently did we beat the boughs, but all in vain. “Bother the larvæ,” we all exclaimed. We stood together racking our brains and staring up into the tall spruces. “I’ve got it,” we almost simultaneously cried out, “they are in the cones.” “I’ll go up,” said Mr. Herd, and up he went, and soon began to pelt us with cones; amongst them were several from which a copious quantity of fresh frass was protruding. These were quickly laid open with a sharp knife, and very soon a lively fat pinkish looking larva, very like a miniature *Cossus ligniperda*, was disclosed to view, which I at once recognized to be *Eup. togata* from a beautiful drawing which Mr. Buckler executed for me several years ago, from a larva reared on young shoots of spruce, from eggs laid by a captured female. A further search revealed sundry other larvæ; in one fresh fallen cone we found no less than seven of various sizes: they feed between the scales of the cone upon the ripe seed at the base.

The larva is of a uniform dull pink, more or less clouded and spotted with black on the dorsal segments. Some of the younger and smaller specimens were very dingy; the head is black, with two small white dots at the base; on the neck are two conspicuous black dots. When full-fed, it quits the cone and spins a slight cocoon on the surface of the earth. The pupa is bright red and resembles that of *Eup. subfulvata*. Another somewhat similarly coloured larva, apparently a *Tortrix*, feeds inside the cones, in company with that of *Eup. togata*. Sir Thos. Moncreiffe believes it to be *A. strobilella*.—H. HARPUR CREWE, Drayton-Beauchamp Rectory, Tring: November 1st, 1875.

On Ebulea stachydalis, a Pyralis new to Britain.—In the third week in June last, while collecting at a short distance from this town, I disturbed, from a dense mass of bushes and herbage, a *Pyralis* which appeared to be a very dark variety of *Ebulea sambucalis*, and was accordingly boxed. Being much occupied at the time with local *Tortrices*, I paid little attention to this specimen, and it was not until it had been removed from the setting-board and compared with continental types that I recognised it as *Ebulea stachydalis*—a species not previously recorded in this country.

On further search I found that a *Stachys* (*S. arvensis*, I think) was growing luxuriantly on the spot, and from this another specimen was disturbed, which, after settling a moment (out of “aggravation” of course), disappeared in a thick mass of brambles, and was no more seen; nor could I by any amount of subsequent labour procure a second specimen.

My friend Mr. Stainton has favored me with an extract from the Stettin. ent. Zeitung, by the late Herr Metzner of Frankfort-on-the-Oder, which not only points out the distinctive characters of the species, but also gives its history, and is therefore interesting.

Stett. e. Z., 1846, p. 242, *Botys stachydalis*, Zincken:—“Treitschke mentions, ‘in the 7th volume of his work, p. 85, an undescribed *Botys stachydalis*, coming ‘near to *sambucalis*, of which he reserves the description for the Supplement. This ‘intention was not, however, carried out, since, in the 10th volume of his work, he ‘is quite silent respecting *stachydalis*. I find that this species has already been ‘mentioned, which probably led Treitschke to hope that he should learn to know it. ‘It is in Charpentier’s remarks on the Micro-Lepidoptera of the Wiener Verzeichniss, ‘p. 15, where Zincken says, in note 23, ‘with *stachydalis*, mihi, a species of *Pyralis* ‘‘discovered by me on *Stachys sylvatica*.’

“But since then this *stachydalis* has been lost sight of; and in the printed ‘catalogue of Treitschke’s collection it is not mentioned, which proves that he had ‘not learned to know it. But we find in this catalogue a *Parietarialis*, Mann, ‘introduced immediately after *sambucalis*. This species, probably taken by Mann ‘of Vienna on *Parietaria officinalis*, if not found as a larva, was largely distributed ‘by the industrious discoverer under this somewhat lengthy name. It had also ‘reached Duponchel, in whose latest work, ‘Catalogue des Lépidoptères d’Europe,’ ‘Paris, 1846, it is introduced in the genus *Botys* at p. 207, but as *Parietarialis*, ‘Parreyss, and as a variety of *sambucalis*. * * * * This *Parietarialis* is just that ‘*stachydalis*, and according to all law and right the older name must be adopted,

"hence I communicate here what I know about it, and give the specific characters in
 "order to call the attention of collectors to a species which is probably not scarce
 "throughout Germany.

"*Stachydalis* (or *Parietarialis*, Mann, under which name I have received speci-
 "mens of it from Vienna) is described and figured by Zincken in the little known
 "Ahren's Fauna, Heft. 4, No. 18. The figure is very bad, with the wings too broad,
 "the hind wings round, and the spots have become brown. In order not to copy
 "the Latin description, which is probably intelligible to few, I give the translation:—

"Wings bent downwards, brown, the anterior with two, the posterior with
 "three, yellowish spots. Brunswick (Museum Zincken). Very closely allied to
 "*sambucalis*, W. V., which it resembles, but it is smaller, and differs in the
 "anterior wings having two, and not three, spots. The sixteen-footed larva is thick,
 "wrinkled, naked, rather clear white; it occurs near 'Brunswick in united leaves of
 "*Stachys sylvatica*.'

"Zincken here lays proper stress on the principal differences, on which, however,
 "something has to be remarked. *Stachydalis* is only generally smaller, exceptional
 "specimens of *sambucalis* are quite as small, consequently there remains, as a certain
 "and constant character, only the number of spots. For instance, *sambucalis* has a
 "large, yellowish, quadrangular spot on the disc, and a still larger rounded spot in
 "the elbow of the second transverse line; besides, there is, as a third spot, a pale
 "yellowish triangle which lies beneath the quadrangular spot between the two first
 "branches of the median nervure, and forms a sort of connecting link between the
 "two large spots. When the central portion of the wing is richly dusted with
 "yellow towards the inner margin this small triangle is less distinctly apparent, but
 "it is *always present*, and on the under-side it participates in the violet gloss of the
 "other spots, which gloss never extends further towards the inner margin. This
 "small triangle is entirely wanting in *stachydalis* on both sides, and thereby the
 "two species can always be recognised. A further difference is presented by the
 "greater breadth and shortness of the wings in *stachydalis*; besides, this has the
 "spots smaller, brighter yellow, less yellow dusting, and therefore a darker appear-
 "ance. It also appears to be a constant character that *stachydalis*, on the inner
 "edge of the quadrangular spot, has a yellow dot separated from it by a narrow
 "dark brown stripe. *Sambucalis*, it is true, also shows a small yellow spot towards
 "the base, but it lies within the first transverse line (whereas in *stachydalis* it is
 "beyond it), and is thus far removed from the quadrangular spot. Finally, *sambu-*
 "*calis* has, in the ♂, very fine dentations on the under-side of the antennæ, which
 "are distinctly visible with a lens; these are wanting in the ♂ *stachydalis*,
 "and are replaced by microscopic, but distinct, pubescence."

I have introduced this long extract because it goes very carefully into the dis-
 tinctive characters. It, however, omits one which is mentioned by Heinemann in
 his description—"the more strongly waved hind margin, and more acute apex of
 anterior wings in *stachydalis*." All these characters I find to agree, except that the
 spots in my specimen are very pale; and there is still an omission:—in *stachydalis*
 the row of yellow dots which lies outside the second transverse line is not dilated
 below the costa as in *sambucalis*, nor is the line itself so deeply bent.

I may add that I have already discovered a specimen of *stachydalis* among
 some old British *sambucalis*, and feel little doubt it exists mixed with that species
 in other collections.—CHAS. G. BARRETT, Pembroke: 8th November, 1875.

On the larva and habits of Paraponyx stratiotalis.—It gives me great pleasure to acknowledge with sincere thanks my obligation to Mr. W. C. Boyd, of Cheshunt, for all the trouble he has so kindly taken to furnish me with examples of this curious subaqueous larva, until I have been able to observe its habits with some degree of completeness.

On June 10th, 1872, he sent me, in wet moss in a tin box, by post, two cocoons and three larvæ; one of the latter, having died, was submitted to Dr. T. A. Chapman, who examined its structure under the microscope, and very kindly took considerable trouble in making pen and ink sketches of several portions of it—to my great assistance in making it out.

The other examples I figured and described, but was baffled at that time in fully observing their habits by (as I believe) the carnivorous propensities of sundry leeches and other interlopers, that gained admittance among the leaves of the *Anacharis alsinastrum*—one of the plants on which *stratiotalis* feeds; for by the end of the year not a trace of cocoons or larvæ could be found.

However, on July 21st, 1874, Mr. Boyd was able to send me, by railway, several cocoons and larvæ, as well as a good supply of food, and with these, having taken more pains, I have been more successful,—carefully removing from their habitat all creatures that could do them harm, and always straining the water supplied from time to time to make good what had been lost by evaporation.

Before giving a detailed account of my observations, I had better describe the larva, because the peculiarities of its structure will account for the most curious of its habits.

The larva when full-grown is from six-eighths to seven-eighths inch in length, of cylindrical figure, though tapered a little on the four anterior segments, the head being rather the smallest, and the two hinder segments also a little tapered; the anterior and anal legs very well developed, the ventral ones moderately so; the skin is soft and smooth, and furnished with eight rows of flexible branchiæ* composed of tufts of six or less slender fleshy filaments of unequal length tapering to rather fine points, and all radiating from a short thick basal stem, and occupying the positions of the usual warts or spots seen so distinctly in an *Agrotis* larva, otherwise, to the unassisted eye, they remind one of the spines of some butterfly larvæ. In colour the semi-translucent body is of a very pale tint of olive-ochreous or of whitish-ochreous, generally more or less tinged with olive, and marked with a few small purplish freckles; the alimentary canal is conspicuous, showing through the skin as a broad dorsal stripe of dark grey, or brownish or greenish-grey; the whitish tracheæ can also be partially seen through the skin on each side; the pale brown head has the lobes delicately outlined with dark brown, the mouth and ocelli blackish-brown; the branchiæ dirty whitish-grey; the spiracles exceedingly small and black, each being situated on the flat centre of a swelling eminence; a small wart-like tubercle near the base of the ventral legs bears a single hair-like filament.

On putting the second supply of the larvæ, &c., with the weed, into a glass globe

* That these are rightly so called, and that they are connected with the respiratory system, I had a good proof while changing the water of the two first larvæ I received; when I put them for a minute or two into a glass of spring water just drawn from a filter, immediately there appeared a small silvery air bubble at the extreme point of each filament, but when the larvæ were returned to the fresh river water these air bubbles soon disappeared. I did not try to make them appear again, as I feared the experiment might be detrimental to the health of the larvæ.
—W. B.

of water, I found amongst them a cylindrical case formed with pieces of *Butomus umbellatus*, about an inch and a half long, and half-an-inch in diameter, no doubt originally constructed by a very different aquatic larva, though now tenanted by a larva of *stratiotalis*; this, on looking at it three hours afterwards, at night, I saw had been deserted; the next morning I found it again in possession of one of the larvæ, when, for better observation, I transferred it with the larva to a wide-mouthed bottle of water and a spray or two of the food-plant; I also placed four others of the larvæ, separately, with pieces of the weed, into as many similar bottles of water: in course of the same evening I saw that the individual in the case had contrived to sink its abode to the bottom of the bottle, and had fixed it there in a nearly perpendicular position, by spinning a quantity of silken threads to the end of a stem of the food-plant, already made fast by similar means to the side and bottom of the bottle; this case had previously been floating on the surface of the water, both when empty and when a larva was inside. Another larva that had its bottle supplied with a longer spray bent double, began at once to spin a quantity of silk to the bent part of the stem, and to the side and bottom of the bottle, thus forming a kind of silken tent open at one side, and through this opening I was able to observe all its movements from time to time. Another spun for itself a sloping wall or screen of silk, from the side to the middle of the bottom of the bottle, enclosing two pieces of the water-weed fixed within it; this was also open at one end. Another spun two stems to the side of its bottle in nearly a vertical position, about half-an-inch apart, and spread its web from one stem to the other, and upon the glass of the sides of the bottle, leaving an opening below half-an-inch from the bottom of the water, the top of the web being about the same distance from the top of the water; this larva continued to live in a position perpendicular to the bottom of the bottle, and eventually drew the stems of its food closer together, and spun itself up in a cocoon between them on July 25th.

The fifth larva, which was smaller than the others, spun a squarish web for itself in the midst of three pieces of the water-weed, and, when other pieces were supplied, spun a fresh web amongst them.

I soon found that these larvæ in the bottles, as well as those in the globe, preferred to live at some depth in the water, not one of them choosing to reside at the surface; each larva in the globe spun a web for itself, either a kind of open tent or a short gallery, and the form varied with its surrounding circumstances, but it was invariably fastened to the food-plant, and occasionally to the glass also: one larva, I noticed, often cut off leaves from the stem of its food, and then attached them to the silken wall of its dwelling.

I now come to mention the peculiar habit of this larva which I watched with extreme interest during many months.

Night and day, at intervals varying from one to three minutes apart, the larva, holding to its web by the anal legs, rapidly undulates its body upwards and forwards with considerable vigour and energy, while the three hinder segments appear motionless; this intermittent movement lasts about twenty-one seconds at a time, and is followed by a period of rest—longer, that is for two or three minutes—when the larva is quiet, and shorter when it is feeding, at such times not exceeding one minute. That this energetic undulation is connected with the respiration of the larva is evident

from the fact that the branchial filaments are then all in strong action, for, instead of radiating as they do in repose, they become depressed a little, and point forwards in the direction of the head.

As to their method of feeding, I noticed that the smaller larvæ ate only the green cuticle from the leaves, thus bleaching them; but the larger ones ate completely through the leaves, cutting out circular pieces: when frass was ejected, the dark alimentary canal was seen suddenly to lose its contents as far back as the beginning of the third segment from the anal extremity (that is the eleventh segment counting in the usual way), and to discharge them with such great velocity that the frass was carried about an inch outside the opening of the silken residence, the larva having first moved backwards to the opening, and afterwards retiring within to its former place. I found in each of the above-mentioned bottles, every morning, at the same distance from the web, an accumulation of rejectamenta consisting of small ovate particles of olive-greenish vegetable debris, little changed in colour from that of the plant: in one instance, after cleaning out this accumulation, and supplying fresh water with no apparent disturbance to the larva, I found, at the end of twenty-four hours, it had expelled twenty-six pellets of frass.

On September 10th, 1874, I had the great satisfaction of breeding one moth from a larva that had spun up in a bottle; but I got out no more, for, although I had then and previously so many other pupæ, yet they, like most of the larvæ, seemed standing over for another season; indeed, two larvæ were not much more than half-grown by the 5th October; up to that date, all seemed going on very well, but, as winter approached, they and the others became somewhat torpid, ceased to feed, and carried on their peculiar motions in a slower manner, at longer intervals, and within webs of more contracted space.

By January, 1875, the *Anacharis* had lost nearly every leaf, and the stems all vitality, and a rapid decay ensued, which destroyed all the contents both of the globe and bottles by the end of the month; and so I was not able to find out whether a second year would have brought out the rest of my stock in the perfect state.

The general figure of the cocoon of silk in which the pupa of *stratiotalis* is spun up, is a long oval about five-eighths inch in length by three-sixteenths in width, and gradually widening to the upper end, which is not rounded, but sloped off from above at an obtuse end, thus presenting a somewhat truncated appearance; it is attached for its whole length, by the back, to a piece of the stem of the food-plant, which affords a strong support, besides being further moored by strong outlying threads from the upper part to the stem; it is but a little tapered towards the hinder end, which is generally involved amongst some leaves; I saw some cocoons fixed to two stems; the colour of the silk is either pale pinkish or flesh colour, inclining to olive anteriorly, and darker greyish-olive behind; its surface very shining, but it is very opaque, and the pupa cannot be seen through it. The pupa itself is half-an-inch in length, rather slender in proportion, widest from behind the thorax, from whence the abdomen tapers to the rather blunt tip; the thorax rounds off towards the squarish head; the eyes large and prominent; the wing-, antenna- and leg-cases well developed, the latter extending free from the eighth to as far as the end of the twelfth segment; only three spiracles on either side are distinguishable, viz., on segments six, seven, and eight, but these are large, circular, and projecting considerably like knobs or warts from the side: at first the pupa is unicolorous, of a delicate yellowish-flesh

tint, but, as it approaches maturity, the wings appear a darkish grey-brown, and show the darker outlined central spot; the eyes also become of the same dark colour, the thorax and legs light brown, the abdominal segments whitish-flesh colour transversely barred with light brown; there is also a faint dorsal line of dusky spots, and a light brown spot on either side of each of the three segments before the last; the spiracles are of a light orange-brown, ringed at the base with blackish.—WM. BUCKLER, Emsworth: *September 21st, 1875.*

On Xysmatodoma melanella and the case of its larva.—When Mr. Harding's notes on *X. melanella* appeared in 1869 (Vol. vi, pp. 91-93), I must confess I was somewhat startled, for variation of species gives trouble enough, but if any insect were proved to be capable of shewing itself under two such totally different forms, not only species, but well marked genera would have to be abandoned, and we should at last arrive at the result of no species and no genera. I therefore hoped we should have heard something more on the subject, and in the meantime made some investigations myself. Has not Mr. Harding confused the cases of two distinct species, of which the imagoes are very different, though the cases are somewhat similar? He describes the cases as "round, slightly curved, and generally green." Now, all the cases from which I have bred *X. melanella*, were slightly curved at the mouth, where the case is circular, but the hinder end is decidedly *three sided*, and the case has, when viewed laterally, a truncated appearance. The colour seems to be *always* green, and when the perfect insect emerges, the pupa skin is left *sticking out*. From these cases I have bred winged specimens of *X. melanella* of both sexes, but nothing else. On the same trees, however, on which these cases were found, there were also cases about the same size, but circular for the *whole* length, and *pointed* at the hinder end. They are not always green, but frequently show circular bands of green and grey, and the pupa skin is always left *inside*. From these latter, I have bred only apterous females of the genus *Solenobia*, and nothing else. I have sent cases of each kind to Mr. Harding, but I believe he still holds to his former opinion, though to myself, the differences noted above are quite conclusive as to the complete separation between the two species.—W. C. BOYD, Cheshunt: *Nov. 1st, 1875.*

[We fear we never laid much stress ourselves on Mr. Harding's supposed discovery of two forms of *Xysmatodoma melanella*; we perfectly recollect, that when first *Elachista poæ* was bred—it was reputed a form of *E. cerusella*,—simply because *simultaneously* eliminated from the same plant.—EDS.]

Coleophora fuscocuprella.—On the 15th of this month, the weather looking a little more favourable, I determined to go after *Asychna profugella* at Witherslack, but the rain unfortunately again set in when I was within half-an-hour's walk of the coveted spot, and I was obliged to fall back on Grange-over-Sands, where I had to wait several hours before any train was available. So I turned into the woods among the yew-trees, and by beating them into my umbrella, I filled all the boxes I had with me, putting in some cases two or three specimens in a box. I filled some thirty boxes with *Lyonetia Clerckella*, the brown form being as six to one of the white form. Among the lot were one *Gracilaria phasianipennella*, four *Zelleria insignipennella*, red form and yellow, and one specimen partly red and the remainder canary colour: *Gracilaria elongella* and *Coriscium cuculipennellum* also put in an appearance.

As all my boxes were full, I now turned to hunting for larvæ, and soon had the pleasure of finding some of *Coleophora fuscocuprella*; I had looked for it in vain since 1856, when the late T. H. Allis and I had many a hunt for it at Windermere, but I should remark that Stainton says "case circular," and this slightly misled me, as the cases are turned as abruptly as a fish hook, even when very young. I found six of various sizes, some appearing quite full-grown. I may add that I found them only on certain nut-bushes, where I have occasionally met with the perfect insect; I fancy the cases are greater *desiderata* than the insects, judging by catalogues sent to me.—J. B. HODGKINSON, 15, Spring Bank, Preston: October 20th, 1875.

Coleophora conyzæ, Zell., a new British species.—It seems strange that so large and conspicuous an insect as *Coleophora conyzæ* should not have been named till 1868. Possibly the insect had often been previously collected, but confounded with other species. The late Von Heinemann, of Brunswick, first met with the larvæ of this insect on *Conyza squarrosa*; afterwards M. Millière found it at Cannes; now Mr. Sydney Webb has met with it near Dover and at Mickleham, so that the species seems to be widely distributed. Mr. Webb observes that "the blotches it makes on its food-plant are very conspicuous," so that he is surprised the species had not been detected before. Mr. Webb has also met with stragglers feeding on *Eupatorium cannabinum*.

The somewhat clumsily-shaped case reminds one strongly of that of the labiate-feeder, *C. auricella*, and it is at a glance distinguished from the smoother and more trim-looking case of the other *Eupatorium*-feeding species, *C. troglodytella*.

Professor Zeller, who describes the species in the *Verhandlungen der zoologisch-botanischen Gesellschaft in Wien*, 1868, p. 623, observes that it closely resembles *C. virgatella*, for which, when collecting the imago, he had mistaken it, not observing the absence of the tuft at the base of the antennæ. Also that it comes very near to *C. onosmella*, for small specimens of which it might almost be mistaken, but that the following differences might be perceived: 1st—the anterior wings are considerably broader; 2nd—the tuft of the palpi reaches to the end of the terminal joint, or even exceeds it, whereas in *onosmella* it only reaches to half the length of the terminal joint; 3rd—the more slender basal joint of the antennæ: 4th—the greater shortness (or, as the German phrase is, "the more trifling length") of the anterior wings; 5th—the early appearance of the imago (from the 28th May to middle of June); and 6th—the difference of the case of the larva. Schläger bred the insect at Jena, from *Inula hirta*.

On the *Conyza squarrosa*, Mr. Webb observes that the larva feeds on the radical leaves rather voraciously.—H. T. STAINTON, Mountsfield, Lewisham, S.E.: November 6th, 1875.

ENTOMOLOGICAL SOCIETY OF LONDON: 3rd November, 1875.—Sir S. S. SAUNDEES, C.M.G., President, in the Chair.

As this was the first Meeting in the New Rooms at 11, Chandos Street, Cavendish Square, the President delivered a short Inaugural Address.

M. Oscar Lamarche, of Liège, was elected a Foreign Member.

Mr. W. C. Boyd exhibited mines of *Heliozela sericiella* in oak. The habits of this insect had for long baffled the researches of Micro-Lepidopterists, though it was

evidently attached to oak. Mr. Boyd had confined a number of the insects with a young oak plant, and was rewarded by the discovery of the larva and mine. The latter is in the foot-stalk of the leaf, and this partly accounted for its having hitherto escaped detection.

Mr. McLachlan exhibited a living apterous female of the terrestrial Trichopterous insect belonging to the genus *Enoicyla* (probably *E. pusilla*, Burn.), discovered in this country by Mr. Fletcher, of Worcester; and gave some account of its singular habits and structure. The perfect insects (the ♂ being provided with ample wings) emerge in November, and the individual exhibited had been recently bred from cases forwarded by Mr. Fletcher.

Mr. Champion exhibited examples of the following *Coleoptera*, most of which have been previously noticed in this Magazine, viz.:—*Cryptophagus populi*, found in the burrows of *Colletes Daviesiana* near Farnham; *Orchestes semirufus*?, from Woking; *Epuræa neglecta*, from Darenth Wood; and *Psammobius porcicollis*, taken by Mr. J. J. Walker at Whitsand Bay, Cornwall.

Mr. Phipson exhibited a *Catocala nupta* with a multitude of the ordinary insect-infesting *Acari* congregated on a certain spot on one of the anterior-wings, instead of being on the body, as is usual.

The Rev. H. S. Gorham read "Descriptions of a new genus and some new species of *Endomycei*."

Mr. A. G. Butler read a "List of the *Lepidoptera* referable to the genus *Hypsa*, with descriptions of new species."

Mr. E. Saunders read the second part of his "Synopsis of the British Hemiptera-Heteroptera."

Mr. C. O. Waterhouse read "Descriptions of new genera and species of *Heteromera* (*Helopidae*), chiefly from Terra del Fuego." They formed part of the collections made by Mr. Darwin on his exploring voyage, and were originally described by Mr. Waterhouse, Sen., but the MS. was lost, and the insects had thus remained unnoticed up to the present time.

Part ii of the 'Transactions' for 1875 was on the table.

HAGGERSTON ENTOMOLOGICAL SOCIETY.—The Eighth Annual Exhibition of this Society was held on Thursday and Friday, November 11th and 12th, at their Rooms in Brownlow Street, Dalston. Many rare insects were exhibited. Among others a fine variety of *C. glabraria* by Mr. Harper, a dark variety of *E. trilinearia* by Mr. Lovell, a striking variety of *S. tilie* by Mr. Clark, three black specimens of *B. abietaria* by Mr. Pratt, varieties of *P. cytisaria*, *G. quercifolia*, and *N. plantaginis* by Mr. J. Moore, &c. Messrs. Biggs and Bryant exhibited a long series of *S. convolvuli*, some of them very fine; Mr. Pratt, *H. osellus*, *L. pulveralis*, *C. gnaphalii*, and *D. albinacula*; Mr. W. H. Danby, *C. gnaphalii* and *L. albipuncta*; Messrs. J. W. and C. Macqueen, *S. chrysidiformis* and *N. agathina*; Mr. Whale, *D. albinacula*; Mr. Meek, *A. nemoralis*, &c.; Mr. Packman, *A. Iris*; and Mr. Machin, a new species of the genus *Eupœcilia*; also *P. grevillana*, *L. servillana*, *C. nimbana*, *E. curvistrigana*, *R. resinana*, *P. paludana*, and a splendid series of *P. upupana*; while last, but not the least interesting, Mr. Hoey exhibited living larvæ of *H. derivalis* feeding on dead oak leaves, their natural food.—HENRY BARTLETT, Secretary.

SOUTH LONDON ENTOMOLOGICAL SOCIETY.—The usual Annual Private Exhibition of this year's captures (held this season in place of a public exhibition, as heretofore) by the Members, took place in the Society's Rooms, 104, Westminster Bridge Road, S.E., on November 4th, 1875, and was well attended, about forty Members being present, the greater part of whom contributed.

Of the large number of species of *Lepidoptera* exhibited (amongst which were many striking varieties), the following are some of the most noteworthy :—

Mr. Sydney Webb, of Red Hill: *Argynnis Selene*, vars.—one golden hued, another silvery; *A. Euphrosyne*, var. with blurred markings of upper wing, the lower almost entirely dark; *Euchelia jacobæ*, pale var., with ordinary markings very elegant owing to a slight diaphanous scaling; *Vanessa Io*, of unusually dark colour, almost looking as though it had been dipped in oil—bred; and many others.

Mr. A. Jones, of Eltham: *Lycæna Corydon*, light brown variety of ♀, Deal, August; *Ephyra pendularia*, ♀ with centre of fore wing orange colour, Tilgate, May; *Noctua sobrina* (2) bred from larvæ taken in Perthshire this summer; *Rusina tenebrosa*, black form, from Rannoch; *Noctua neglecta*, var., bred, larva from Rannoch; *Cidaria corylata*, pale var., Rannoch.

Mr. J. P. Barrett, of Peckham: *Arge Galathea*, fine var., Gravesend; *Apatura Iris* and *Nola albulalis* (series), Strood; *Acronycta alni*, bred, larva from the New Forest; *Agrotis raveda*, Sheerness; and many others.

Mr. Tugwell, of Greenwich: *Ophiodes lunaris*, taken this season at Abbots Wood, Lewes; *Xylina conformis*, series, bred, Llantrissant; *Dianthæcia albimacula*, Portsmouth; *Triphæna orbona* (var. *Curtisii*), Aberdeenshire; *Corycia taminata*, suffused var., Strood; and *Agrotis nemoralis* (series), Abbots Wood.

Dr. Lucas, Westminster Bridge Road: *Sesia chrysidiformis* (bred), *Asthena sylrata*, *Dianthæcia albimacula*, *Heliothis marginata*, *Emmelesia affinitata*, and others from Folkestone.

Mr. Shearwood, of Norwood: *Erastria venustula*, Horsham; *Noctua ditrapezium*, Brighton; *Stenia punctalis*, Eastbourne; *Heliophobus hispida*, Devonshire; *Dianthæcia albimacula*, Portsmouth; and others.

Mr. Williams, Old Kent Road: *Notodonta chaonia* bred, larvæ from Tilgate; *Boarmia abietaria*, bred series, larvæ from Mickleham; *Trichiura cratægi*, bred series; and others.

Messrs. Farn and Bird, of Dartford: A box of *Tineina* and *Crambites*, containing about 1400 specimens (consisting of a large number of interesting and rare species) from various localities, and all taken during the past season.

Mr. Briggs, Lincoln's Inn: *Lycæna Ægon*, gynandromorphous specimen; *L. Alexis*, hermaphrodite, Folkestone, July; *Lemiodes pulveralis* (2), and *Crambus Verellus*, Folkestone; *Zygæna filipendulæ*, five vars.; and others.

Mr. Weston, Islington: *Arge Galathea*, var. with fore wings almost colourless; *Satyrus Janira* vars.; *Lycæna Corydon*, *Ægon*, and *Alexis*, vars.; *L. Adonis*, blue forms of ♀ upper side, and a ♂ var., also vars. of under-side; *Polyommatus phloxæ* vars.; *Syrichthus alveolus*, a streaky var.; *Ennomos tiliaria*, bred pale and dark vars.; *Zygæna filipendulæ*, vars. with sixth spot indistinct or absent—bred; *Spilodes palealis*, *Telthea retusa*, and others—bred examples; also very many interesting *Tortrices*.

Mr. Hoey, Peckham: Life history of *Limenitis Silylla*; also preserved larvæ of *Hermia derivalis*, *Acidalia inornata*, *Ptilophora plumigera*, *Trichiura cratægi*, and others.

Mr. Oldham, Hackney: *Leucania albipuncta*, *Colias Edusa* (var. *Helice*), and others from Folkestone; *Carsia imbutata* and *Hyria auroraria*, Carrington Moss; and others.

Mr. S. Stevens: Vars. of *Lycæna Ægon* and *Corydon*, *Hesperia linea* and *comma*, &c.

Mr. Ficklin, of Kingston: *Macaria alternata*, series, Coombe Wood; *Geometra papilionaria*, bred series; *Ennomos erosaria*, *fuscantaria*, and *tiliaria*, &c.—bred examples.

Mr. Standen, of Surbiton: *Xylina semibrunnea*, Oxford; *Melanthia rubiginata* and *Noctua Dahlii*, Wicklow; *Aplecta herbida*, New Forest; *Trachea piniperda*, Esher; also bred examples of *Acidalia emutaria*, &c.

Messrs. Moor and Gibbs, Old Kent Road: *Neuria saponariæ*, *Epunda lutulenta*, *Acontia luctuosa*, and *Hecatera dysodea*, Margate; *Heliothis dipsacea*, Felixstowe; *Bombyx callunæ*, Bodmin; and others.

Mr. Bliss, Ladywell: *Spilodes palealis*, *Leucania comma*, and *Miana literosa*, Lewisham; *Xylina semibrunnea*, *Cabera rotundaria*, *Epunda lutulenta*, *Geometra papilionaria*, *Lithosia griseola*, &c., from Darenth Wood; *Acidalia rubricata*, Box Hill; *Nudaria senex*, Tilgate; *Tephrosia consonaria*, *Eurymene dolabraria*, and others from West Wickham.

Messrs. C. and S. Channon, of Lewisham: *Limacodes asellus*, *Zygæna meliloti*, *Leucania pudorina*, *Cleora glabraria*, *Boarmia roboraria*, *Acidalia emutaria*, and many others from the New Forest; *Leucania albipuncta*, West Wickham Wood; *Notodonta dictæoides*, *Lithosia quadra*, *Cabera rotundaria*, *Eremobia ochroleuca*, and others from Darenth Wood; *Xylina semibrunnea*, *Camptogramma fluxuata*, *Tethea retusa*, *Cucullia chamomillæ*, *Cirrhædia xerampelina*, *Agrotis saucia*, *Amphidasis prodromaria*, &c., from Lewisham.

Various species of *Coleoptera* taken this season, were exhibited by Mr. Spiers, and by Mr. Champion.

Mr. Marsh, and Mr. H. D. Power, contributed *Hymenoptera*, the former exhibiting many species of *Tenthredinidæ*, and the latter species belonging to the *Aculeate* and *Fossorial* groups.—G. C. CHAMPION, *Secretary*, 274, Walworth Road, London, S.E.: November 9th, 1875.

Review.

CATALOGUE DES HÉMIPTÈRES HÉTÉROPTÈRES, CICADINES ET PSYLLIDES D'EUROPE ET DU BASIN DE LA MÉDITERRANÉE.

Under this title, has recently been published the 2nd edition of Dr. Puton's Catalogue of the Hemiptera of Europe, &c. The first came out in 1869, but the new species described since then, and the alterations in synonymy, &c., have been so numerous, that a new edition was much wanted, and will be most acceptable to all who study European *Hemiptera*. The increase in the number of species given in the present Catalogue over that in 1869 is 260, but this does not represent all the new species that have been discovered, because a large number of the so-called species of 1869 have now been sunk as synonymous with others. The present is a full synonymic list of all the European species of *Heteroptera*, including also those of the Mediterranean basin, and has been extended also to the *Homoptera*. It is printed in two forms; one a catalogue of reference, in two columns; the other for labelling, in one column. They are admirably got up, and the only thing to be wished is that the labelling catalogue had been printed on thicker paper. There is, however, one error that must be pointed out, viz., that *Oncotylus pilosus*, given as a species on p. 42, is only a variety of *Macrocoleus solitarius*, as noticed by Messrs. Douglas and Scott in this Magazine, vol. x, p. 277. There are still many species given as doubtful, which we may yet hope to see cleared up; for instance, it may well be believed that the number of species in the genus *Corixa* (68) will have to be considerably reduced. We are sure all Hemipterists will unite in thanking Dr. Puton for this and his other excellent works on *Hemiptera*.—E. S.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA* (*ATHYSANUS*).

(continued from Page 100.)

BY JOHN SCOTT.

SECTION C.

Distance between the inner margin of the eyes at the base of the head more than twice the length down the centre; anterior margin sub-rotundate.

Crown yellow, with a broad transverse black streak in a line with the anterior margin of, and extending to, each eye; middle of the anterior margin with an arcuate black streak, best seen from in front. *Face* black, with a narrow central line, apex, and 7-8 transverse, slightly curved streaks on each side, yellow; near the upper margin of each eye, and between the latter and the side of the lobe is a conspicuous yellow spot. *Clypeus* yellow, base and a broad central line black; *loræ* yellow, narrowly margined with black. *Elytra* longer than the abdomen, generally fuscous or brownish, nerves yellow; ante-apical areas here and there pale in the middle; two apical areas next the dorsal margin pale. *Wings* pale fuscous; nerves darker. *Thighs*: 1st pair yellow, base broadly, and a ring, or sometimes only a spot, on the lower margin towards the apex, black. Length $1\frac{1}{2}$ — $1\frac{3}{4}$ line 14. *STRIOLA*, Fall.

A small species, and easily recognized by the black streak on the crown and the pale nerves of the elytra. I sometimes fancy, on examining my specimens, that we have another species mixed up with the above, in which the head is a little more pointed in front, the elytra testaceous, shading off to very pale straw colour on the costal margin, and having the genital plates of the ♂ yellow, whereas in *A. striola* these last are usually black. For the present, however, I leave the matter as it is, until I have completed my dissections.

Crown brownish-yellow, with a transverse black streak on the anterior margin extending from eye to eye; across the middle a brown streak, in which are two large shallow foveæ. *Face* black, with 6-7 fine, transverse, yellow lines. *Elytra* longer than the abdomen, brownish-yellow, shining; nerves paler than the disc, and narrowly margined on each side with dark brown. *Corium*: ante-apical areas adjoining the costal margin dark brown or blackish, frequently palish in the centre; apical areas dark fuscous, sometimes paler in the centre. *Wings* dark fuscous; nerves black. *Thighs*: 1st pair, sordid yellow, with two narrow black rings. Length $2\frac{1}{4}$ — $2\frac{1}{2}$ lines.....15. *NERVOSUS*, Fall. (*Verralli*, Scott.)

This insect was sent by me to the Continent before it was described, to ascertain whether it was amongst Fieber's insects or drawings, and was returned as unknown. Too late to prevent its appearance under a new name, I stumbled upon the Fallénian description, and, on reference to Fieber's Cat., I find he has placed it in a new genus of his own, in which he is followed by J. Sahlberg, viz., *Paramesus*. It seems

to be a scarce species on the Continent, and was described by Stål in the *Förhandlingar*, 1847, 174, 4, under the name of *Athysanus obtusifrons*.

Two other representatives of this genus were forwarded by Mr. Douglas to Dr. J. Sahlberg for identification, who returned one of them as *A. distinguendus*, Kirschb., without doubt, and the other as perhaps *A. convexus*, Kirschb. I have hesitated to describe these species, although I see no reason why they should not be found in England, for the following reasons, viz. :—Kirschbaum places his *distinguendus* in a group of which he makes *plebeius*, Fall., his type, having milk-white patches, especially upon the transverse nerves, of the elytra, and as I fail to detect these patches, although Kirschbaum says they are less distinct than in the typical insect, I at present believe this to be only a form of *A. obscurellus*. The other, ? *A. convexus*, appears to me to approach *plebeius* more than the division of which *obsoletus*, Kirschb., is the representative, and there being only a ♀ which does not bear out the description of the author, it is perhaps wiser to wait until we see further. The extraordinary amount of variation in colour in the whole of the species of *Homoptera* renders them extremely difficult to deal with, and perhaps the climax is attained in *Iassus*, *Thamnotettix*, *Athysanus*, and *Deltocephalus*.

Genus ALLYGUS, Fieber, *ined.*

The name for this new genus was proposed by Fieber, in his *Kat. der Europ. Cicad.* (1872), and, although he may not have left any details of the characters by which he defined it, except perhaps those in his drawings which I have not seen, I think there can be but little doubt that his first idea for separating the species from *Athysanus*, auctt., was derived from Burmeister's *Gen. Ins.*, vol. i, on the plate bearing the name *Iassus* (the plates are not numbered, neither is the letter-press paged), and the drawing of the elytron numbered 8 on that plate. There it will be seen that the ordinary ante-apical areas to which we have been accustomed are broken up at irregular intervals into smaller areas by means of transverse nerves. These are permanent, and not mere "sports" or freaks, such as are often met with amongst many of the *Homoptera*, where, in a single insect, the neuration on the one elytron is very different to that on the other. The shape of the insects is also favourable to their removal here. The head is narrower, and the outline somewhat more boat-shaped than in *Athysanus*. It is peculiar also that all the species are reticulated, and have their transverse nerves white. Fieber's Catalogue shews sixteen

species as European, of which ten are his own naming; nine of these have never been described, and, except that the types or the drawings are in the possession of MM. Lethierry and Puton, they might as well never have been named.

The following are the principal characters by which the genus may be known :—

Head—*crown* slightly convex; anterior margin rounded, angle obtuse; distance between the inner margin of the eyes at the base twice or more than twice the length down the centre; basal margin concave. *Eyes* moderate, outer margin in a line with the lateral margin of the pronotum. *Ocelli* minute, placed on the anterior margin near to each eye. *Face* convex. *Clypeus* reaching to the lower margin. *Cheeks* wider than long, with a longitudinal channel in a line with the lower angle of the eye: *loræ* somewhat lozenge-shaped, the outer margin rounded.

Thorax—*pronotum* transverse, sub-hexagonal; anterior margin convex; lateral margins rounded; posterior margin concave. *Scutellum* triangular, apex acute. *Elytra*—*clavus*: axillary nerve joined to the central nerve by a transverse nerve springing from the centre of the former; central nerve and claval suture united at irregular intervals by 3–4 transverse nerves. *Corium*: ante-apical areas divided here and there by transverse nerves.

Abdomen: genital valve short, projecting but a little way beyond the margin of the last abdominal segment; genital plates elongate, somewhat parabolic.

Crown somewhat bone-white; extreme anterior margin with four black spots, best visible from in front, and a black patch next each eye, its inner margin half encircling the ocellus; in the middle, two black spots about equidistant from each other and the eyes, and posteriorly a smaller spot, sometimes obsolete, near each eye. *Face* black, with about seven short, transverse, yellow streaks on each side, and a narrow, longitudinal, central line joined to a broad transverse band before the apex, also yellow. *Clypeus* yellow, with a black, longitudinal, central line widened towards the apex; *loræ* yellow, margined with black, except at the apex next the clypeus. *Elytra* black, longer than the abdomen. *Clavus*: suture and inner marginal nerve testaceous; at the apex of the central nerve a large, white, somewhat semi-ovate patch, in which is a sometimes divided black streak next the claval suture; along the inner margin between the base and the apex of the 1st nerve, three or four white spots; disc between the nerves reticulated with brown. *Corium*: costal nerve testaceous-white; 1st and 2nd transverse nerves white, the colour on the former extending for a little way up and down the longitudinal nerves forming an H-shaped character; costal margin with a white patch opposite the two transverse nerves, in the former generally

a pitchy-black streak, and in the latter a small, round black spot; apical areas testaceous, their bases and apices fuscous-black; longitudinal nerves finely spotted with brownish-yellow. *Thighs*: 1st pair pale testaceous with a broad black ring at the base, and another narrower one before the apex.

♀. Brown, finely reticulated with black. *Elytra*: apices of the nerves of the clavus, and generally all the transverse nerves of the corium, white.

Length, ♂, $2\frac{1}{2}$, ♀, 3 lines. 1. MIXTUS, Germ.

Sometimes the ♀ is almost identical with the ♂ in colour and markings.

I believe this to be the commonest of the three species at present known in Britain, and at once to be distinguished from the other two by the characters on the head and the black elytra.

♀. *Crown* pale testaceous, somewhat dingy, with a lunate brown streak, its extremities passing the inner margin of the ocelli, and enclosing four brown spots on the anterior margin. *Face*: upper half brown, lower half black; the former with 4-5 pale transverse streaks on each side, the latter with a narrow, longitudinal central line, and the sides next the apex margined with testaceous. *Clypeus* testaceous, base and a broad central streak black; cavities, in which the pale antennæ are set, black. *Cheeks* and *loræ* pale testaceous. *Elytra* longer than the abdomen, greyish or dingy testaceous. *Clavus* next the dorsal margin spotted with dark brown, interrupted by the nerves. *Corium*: all the transverse and portions of the longitudinal nerves white; area immediately below the basal one, transversely reticulated with dark brown; inner margin of some of the nerves of the whitish ante-apical areas here and there spotted with dark brown. *Thighs*: 1st pair yellow; on the outside at the base two short, longitudinal, black streaks and a transverse half ring before the apex also black. Length 3 lines.

2. COMMUTATUS, Fieb., = *atomarius*, Kirschb.

As Germar had already described a species belonging to this genus under the name of *atomarius*, and with which Kirschbaum's species had nothing whatever to do, Fieber, in his Catalogue, proposed for it the name I have above used. *A. atomarius* is a much larger insect than *A. commutatus*, and Fieber refers *Heydeni*, Kirschb., to it. I only possess a single example, from which the foregoing description was made, which was named for me by the late Dr. Fieber.

Crown testaceous-grey, with a black slanting 7-shaped character on each side, its upper edge margining the ocelli for a short distance; near the base a small brown spot, placed nearer to the eyes than the middle of the basal margin. *Face* testaceous, with about eight broadish, black, transverse streaks on each side, the two on the frons more or less comma-shaped; longitudinal, central line and the apex forming a 1-shaped testaceous character. *Cheeks* and *loræ* testaceous, the latter with a small black spot nearly in the centre. *Elytra* longer than the abdomen, testaceous. *Clavus*: apex dark brown, composed of confluent spots, margins of the nerves finely spotted with dark brown, more or less interrupted in different individuals; apices of the nerves and a small spot above each, white. *Corium*:

anterior marginal nerve brown, the areas adjoining the latter from the base to the apex transversely reticulated with dark brown; the next adjoining areas also transversely reticulated but much interrupted; margins of the nerves of the other areas spotted with dark brown; transverse nerves white. *Wings* fuscous-brown, nerves piceous. *Thighs*: 1st pair yellow, with a black ring before the apex. Length, ♂, $2\frac{1}{4}$, ♀, 3 lines. 3. MODESTUS, Fieb. *ined.*, (*atomarius*, Marshall).

This species is easily recognizable by the slanting 7-shaped character on the crown.

I have examined the exponents of *A. atomarius* in the collection of the Rev. T. A. Marshall, and compared them with his description in the E. M. M., vol. iii, p. 84, 22, and can confidently refer them to the above.

Lee: August, 1875.

DESCRIPTIONS OF TWO NEW SPECIES OF *LUCANIDÆ* (*COLEOPTERA*).

BY CHAS. O. WATERHOUSE.

ODONTOLABIS GOUBERTI, *sp. n.*

Statura fere O. gazellæ; totus niger; elytris nitidioribus, distinctius punctulatis.

♂. *Mandibulis capite paulo brevioribus, crassis, ad basin subito incurvatis; basi dente magno obtuso, medio dente conico, dein ad apicem dentibus 2—3 minoribus, intus armatis. Capite magno, sub-opaco, confertim granuloso, pone oculos dente sat acuto antrorsum directo instructo; oculorum cantho lato, depresso, externe arcuato. Thorace sat convexo, subtilius granulato, medio nitidiori, antice angustato, dente laterali magno, triangulari. Elytris thorace vix latioribus, sat nitidis, ad latera sub-opacis, sat crebre distincte punctulatis, latitudine $\frac{1}{2}$ longioribus. Tibiis anticis extus denticulis 2 vel 3 minutis acutis armatis.*

Long. (cum mandib.) 21—26 lin.

♀. *Capite ut in O. gazella; thorace dorsim minus depresso, antice regulariter angustato; dente laterali haud producto; emarginatione ad angulos posticos obliquo; angulis posticis haud acutis. Long. 19 lin.*

This species resembles *O. gazella* in general form, but the elytra are rather more expanded below the shoulders. The head in the male is much broader and larger in proportion; the canthus of the eye is as in *O. carinatus*, but much more dilated. The spine behind the eye is as in *O. gazella*, but is more acute and directed forwards. The mandibles are short and strong, suddenly bent inwards at the base, the external outline being somewhat flexuose; there is a strong blunt tooth at the base, a second about the middle, and between this and the apex are two or three smaller blunt teeth; when the mandibles are closed there is an open space left between the basal and the

mesial teeth. The thorax gradually narrowed in front from the lateral tooth, which is triangular as in *O. carinatus*; the incision at the posterior angles is also as in that species. The elytra are rather more distinctly, and somewhat less closely, punctured than in *O. gazella*.

The head of the female is as in *O. gazella*; the thorax is relatively broader than in that species, gradually narrowed from the lateral tooth to the anterior angles, thus the form of the thorax is nearly that of *O. bicolor*, ♀, but it is rather more narrowed in front.

Hab. : Mindoro, Philippines.

Coll. Major Parry.

CYCLOMMATUS ZUBERI, *sp. n.*

Pallide castaneus, æneo-micans (♂ *griseo-pubescens*); *corpore subtus, antennis pedibusque piceo-æneis, femoribus supra rufo-testaceis; thorace linea suturali ænea.*

♂. *var. max.*; *mandibulis longis, regulariter arcuatis, intus prope basin dente magno acuto, prope apicem dente brevi lato; clypeo lato, reflexo, recte truncato.* Long. (sine mandib.) 16 lin., mandib. $9\frac{1}{2}$ lin.

♂. *var. minor*; *mandibulis capite paulo longioribus, intus basi dente magno apice emarginato, ad apicem denticulis 5—6 armatis; clypeo lato, truncato, obsolete tridentato.*

Long. (sine mandib.) 11—13 lin., mandib. $4—5\frac{1}{2}$ lin.

This species closely resembles *C. affinis*, but is darker in colour, more shining; the pubescence (only in the ♂) is rather less scale-like and more dense. The thorax in both sexes has an æneous sutural line, and an æneous stripe on each side towards the sides. The male in the large variety has the mandibles furnished with a single large tooth at the base, and between this and the apical teeth there are indications of three or four small teeth, the foremost of them being most prominent; the sub-apical tooth is broad and short, and between this and the apex of the mandible are two or three small teeth.

The smaller males have the basal tooth of the mandibles emarginate at its apex; between this and the sub-apical tooth there is sometimes a very small tubercle; the sub-apical tooth is acute, and not much larger than the three or four teeth which follow it.

The female pale castaneous, with a spot on the middle of the forehead and behind each eye blackish-æneous; the punctuation is crowded. The thorax has three broad dark æneous stripes; the punctuation is thick and strong, less strong and more close than in *C. affinis*. The elytra are very closely and somewhat strongly punctured, less closely and less strongly than in *C. affinis*; the suture and the extreme margins are æneous, and there is also an indication of a stripe on the disc of each elytron. The whole insect is much broader, and less convex, than the female of *C. affinis*.

Hab. : Mindoro, Philippine Isles.

Coll. Major Parry and Brit. Mus.

DESCRIPTION OF A NEW SPECIES OF *CHIASOGNATHUS*
(*COLEOPTERA*; *LUCANIDÆ*).

BY MAJOR F. J. S. PARRY, F.L.S.

CHIASOGNATHUS HIGGINSI, *sp. n.* (*var. max.*).

♂. *Castaneus, nitidus, purpureo vel viridi-æneo micans, aureo pubescens; mandibulis gracilibus, deflexis, sinuatis, capite prothoraceque paulo longioribus, granulosus, apicibus inflexis intus minute nodoso-serratis, dentequae parvo sub-apicali instructis; antennæ mutilatæ. Capite quadrato, antice elevato utrinque nodoso, angulis ante oculos acute productis; prothorace transverso, convexo, disco elevato, irregulariter rugoso-punctato, angulis anticis posticisque productis, rotundatis, leviter reflexis, lateribus profunde foveolatis, minute nodoso-serratis, elytris crebre subtiliter punctatis, rugoso-vermiculatis, pedibus concoloribus, æneo tinctis, tibiis anticis curvatis, extus et intus minute irregulariter denticulatis, posticis quatuor rectis, sub-lente extus spinis 3 vel 4 minutis instructis, tarsis nigris.* *Long. corp. unc. 1, lin. 2; mandib. lin. 6.*

♀. *Niger, nitidus, obscure viridi-æneo tinctus; mandibulis brevibus robustis, valde rugoso-punctatis; capite parvo, antice binodoso-elevato, fortiter punctato, angulis ante oculos rotundatis; prothorace sub-lente crebre et minute punctato, angulis anticis productis, rotundatis, posticisque obliquis, lateribus irregulariter nodoso-serratis. Elytris elongatis, sub-convexis, dense subtiliter punctulatis, vermiculatis, angulis humeralibus rotundatis pedibusque concoloribus punctatis, tibiis anticis extus tridentatis, intermediis bispinosis, posticisque spinâ minutâ prope apicem instructis.* *Long. corp., mandib. incl., unc. 1.*

Habitat: Bolivia.

Coll. Parry.

C. Higginsi, ♂, although having a close resemblance to the members of the genus *Sphenognathus*, may be at once distinguished by the slender sinuate and deflexed mandibles, characters in these organs peculiar to the genus *Chiasognathus*. *C. Higginsi* forms an appropriate link between the two genera. We are indebted to C. Buckley, Esq., for the discovery in Bolivia of this new species; unfortunately, most of the specimens sent (chiefly females) arrived in a very indifferent condition. With reference to the females, although differing conspicuously from the ♂, both as to coloration and total absence of even any trace of pubescence either on the upper or under surface of the insect, they may, nevertheless, I think, be united, without hesitation, to the males, instances occurring in other allied species, showing, in this respect, the same remarkable difference between the two sexes.

NOTES ON BRITISH *COLEOPTERA*, WITH DESCRIPTIONS OF THREE
NEW SPECIES.

BY E. C. RYE, F.Z.S.

HYDROPHORUS ASSIMILIS, Payk.

I am indebted to Mr. Horace Francis, of Lee, for ♂ and ♀ of a variety of this insect, taken by him at Keswick, Cumberland. They differ from the ordinary form in being rather smaller, with only the tip of the apical joint of the antennæ dark, and in having in the ♀ the faintest possible indication of the ordinary two basal thoracic dark spots, which in the ♂ are entirely absent. Mr. Francis informs me, that of thirty-six specimens taken at Keswick, nine have no spots on the thorax, sixteen have them indistinct, one has them united, and the remainder have them separate and well marked. In about half the number, the extreme tip only of the antennæ is dark. Neither Aubé, Schaum, or Thomson notice any variation in the thoracic marking. The 6th elytral black stripe in the above mentioned ♂ is much abbreviated; but all the stripes vary much in length and width in this species,—I have one specimen in which the whole elytra are suffused with black, leaving faint traces of discal yellow lines, and a thin border of yellow, expanding above and below the middle of the sides into a larger light spot.

ALEOCHARA HIBERNICA, *sp. n.*

Linearis, nigro-picea, pedibus, antennarumque articulis quatuor basalibus, testaceis; capite nitido, sat evidenter haud crebre punctulato, thorace convexiusculo, quam caput crebrius punctulato, basi obsolete foveolato; elytris hoc fere longioribus, fortius at minus crebre punctulatis; abdomine nitido, suprâ sat crebre punctato, apice læviusculo.

Long. 1½ lin. (Anglic.).

Of the size, and somewhat of the build, of *Homalota cambrica*, Woll. (*velox*, Ktz.); but darker, more convex, elongate, and shining, less closely punctured, with shorter antennæ, &c. Closely allied, according to M. Chas. Brisout, to *Aleochara nigrata*, Fairm., from which it differs in its finer and closer punctuation, and lighter femora. It cannot satisfactorily be compared with any British species, owing to its linear shape, feeble punctuation, and very small size; in the latter respect, however, it is about equalled by the smallest *A. nitida* in my possession. The facies, in fact, is not that of an *Aleochara* at all, the antennæ being gradually and very slightly widened towards the apex, and there being the reverse to a tendency to the fusiform shape. The anterior tarsi are, however, 5-jointed.

A single specimen was taken by Mr. G. C. Champion, in June last, out of moss at the top of Slieve Donard (a mountain 2800 feet high, Co. Down, Ireland), in company with *Oxypoda rupicola*, mihi, and other hill-frequenting species.

Mem. *Aleochara nigrata*, Fairm., described as a *Calodera*, Faune Ent. Franç., Col. i, p. 380, from two specimens found under moss near Paris, by M. Brisout, is omitted from the third edition of De Marseul's Catalogue, 1867, though it appears as an *Aleochara* in that of Dr. Grenier (1863).

HOMALOTA EGREGIA, *sp. n.*

Elongata, linearis, depressa, parce pubescens, nitidiuscula, brunneotestacea; capite, fere lævi, abdominisque segmentis 4^{to} et 5^{to} suffusim, piceo-nigris; antennis capite et thorace longioribus, articulis penultimis haud fortiter transversis; thorace obscuriore, obsolete canaliculato, elytris hoc vix dimidio longioribus, obsoletissime punctulatis; abdomine suprâ lævigato.

Long. 1½ lin. (Anglic.).

(Section C, group viii. of Dr. Sharp's 'Revision'; 4th group, Kraatz.)

Allied to *H. rufotestacea*, Ktz., and *elegantula*, Bris., which it resembles in colour; differing from both in the structure of its antennæ, which are longer, gradually and but slightly widened towards the apex, with the 4th joint considerably less transverse, joints 5-10 transverse-obconic, and the apical joint very much longer. From *rufotestacea*, it differs also in its rather more depressed build and shining appearance, the still more obsolete punctuation of its head; its much more shining, darker, more obsoletely channelled and rather more evidently and widely punctulated thorax; and rather longer elytra. From *elegantula*, it may at once be known by its smaller size, unpunctured head, more shining thorax, &c.

A single specimen, taken by Mr. G. C. Champion at Caterham, by evening sweeping in June, 1873 (recorded as *H. rufotestacea*, Ent. Mo. Mag., x, p. 39), has been returned by Dr. Sharp and M. Brisout as unknown to them.

HOMALIUM GRACILICORNE, Fairm.

M. Brisout, the captor of the single example on which this species was described, having been fortunate enough to take some more, has kindly sent me one, which agrees *ad punctum* with the specimen on which I introduced the species as British.

COLON ZEBII, Kraatz.

Barnevillii, Ktz. ; Tournier, Ann. Soc. Ent. Fr. (4), iii, p. 146, pl. v, fig. 10 (*forma brevimucronata*).

Two ♂ specimens, one taken by Mr. E. A. Waterhouse, at Studley, near Ripon, in May last, the other by Mr. Champion, taken at Caterham, in June, 1873, have been returned to me by M. Henri Tournier, of Geneva, as *C. Barnevillii*, a species new to our list. It is described as much resembling *C. Zebii*, but of a constantly smaller size, with the antennæ always entirely testaceous, the thorax darker than the elytra, which are more strongly punctured, and the shorter and less regularly curved hind femoral spine of the male. This spine differs in development in these two examples, so that I have been induced to examine further specimens of *C. Zebii*, and can only come to the conclusion that *C. Barnevillii* is an undeveloped form of it, and not a good species. As to size, I have examined undoubtedly ♂ *Zebii*, only one line long (it varies to over $1\frac{1}{3}$ lin.), as small as the smallest *Barnevillii*; the antennæ are often entirely testaceous also in *Zebii*; the thorax is not darker than the elytra in one of the two British *Barnevillii* above noted, and is often darker in *Zebii*; I see no difference in the punctuation; and I find among Mr. Champion's specimens a ♂ with the spine intermediate in curvature and length between *Zebii* and *Barnevillii*, there being, moreover, a distinct difference in these respects between the first mentioned two specimens, as above noted.

PHALACRUS.—M. Tournier, who is still engaged upon a Monograph of this genus and its allies, now considers the insect referred to as *P. Humberti*, Tournier, Ent. Mo. Mag., ix, p. 37, to be a variety of *P. corruscus* (I have further British examples). A very small form of *P. corruscus*, scarcely three-fourths of an English line long, has come under my observation recently (in some numbers); this only differs in size from the type. I have found another example of *P. Brisouti*, mihi, taken at Deal, and several specimens of *P. brunnipes*, Bris., from salt marshes at Chatham and Sheerness, among some insects belonging to Mr. Champion.

OLIBRUS HELVETICUS, Tournier, MS.

A single example, taken by Mr. Champion at Caterham, in July, 1872, has been returned to me with this name by M. Tournier. Its shining black colour, and rather evident elytral punctuation, distinguish it from all known British species except *O. particeps*, from which its broader and shorter form will suffice to separate it.

CRYPTOPHAGUS SUBFUMATUS, Kraatz, Stettin. ent. Zeit., 1856, p. 241.

A single specimen from the London district, in Mr. G. C. Champion's collection, is corroborated as belonging to this species by M. Brisout. It resembles *C. validus*, Ktz., being nearly as large, but narrower, especially in the thorax, of which the anterior callosities are more distinctly prominent.

ATOMARIA DIVISA, *sp. n.*

Breviter ovalis, convexa, fere gibbula, sub-glabra, rufo-ferruginea, thorace haud transverso, antrorsum leviter angustato, basi anguste haud profunde transversim impresso, marginis medio haud elevato; elytris nigris, apice humerisque rufescentibus, parce evidenter punctatis, femoribus piceis.

Long. corp. $\frac{2}{3}$ lin. (Anglic.).

Habitat Angliam.

Closely allied to *A. rubricollis*, Bris., from which it differs in its much shorter build, the much stronger punctuation of its elytra, which are less contracted behind, its black scutellum, almost quadrate thorax, and darker femora.

Of English species, it can only be compared with *A. nigripennis*, on account of its red head and thorax and black elytra; it differs, however, from that well-marked species in its shorter and more convex build, in its thorax being longer, more convex, much less narrowed in front, with a scarcely visible basal transverse depression, and no elevation before the scutellum, the less contracted lower third of its elytra, which are more strongly punctured, and have reddish humeral points and apex, and in its darker femora.

A single specimen, in my own collection.

NANOPHYES GRACILIS, Redt.

A specimen of the insect recorded as British by me under this name, has been returned by M. Brisout as *N. geniculatus*, Aubé. M. Brisout says "il est bien possible que ce soit aussi le *gracilis*, Redt." I have forwarded the specimen to Dr. Redtenbacher, who tells me that, after a careful comparison of my insect with the type of his species, he finds the two are perfectly identical.

The synonymy will therefore stand:—

Nanophyes gracilis, L. Redtenbacher, Fauna Austriaca, Edn. 1 (1849), p. 370.

geniculatus, Aubé, Ann. Soc. Ent. France, 1864, p. 327.

Dr. Redtenbacher also points out that the reference in Gemminger and Von Harold's Catalogue of *N. gracilis* to *Chevrieri*, Boh. (in Schön. Curc., viii, 2, p. 193), is incorrect, since the latter insect is described as having the femora *uni-spinose*. With regard to this character, I observe that M. Henri Brisout, in his Monograph of *Nanophyes*, p. 28, says of *N. Chevieri*—"femoribus uni- aut bi-spinosis." This variation in an apparently important structural point is also recorded by him in several other species of the genus, and probably results from the accidental non-development of the weaker of the two spines. However this may be, *N. Chevieri*, if only from its oblong-ovate form, has certainly nothing to do with *N. gracilis*.

GRAPTODERA LONGICOLLIS, Allard.

This species, of which the ♂ has the basal joint of the anterior tarsi very much triangularly dilated, differs from *ericeti*, All., in its smaller size, shorter and stouter antennæ, almost entirely impunctate thorax, and more finely punctured elytra,—the punctuation of the latter being very minute on a delicately shagreened ground, whereas it consists of larger and smaller punctures mixed in *ericeti*, in which also the thorax is, though finely, distinctly punctured all over. A ♂ and ♀, taken *in copulâ*, and supposed to connect the two species, are returned to me by M. Allard as certainly ♂ and ♀ *longicollis*, and I also possess undoubted females of *longicollis*, quite distinct from *ericeti*. *G. ericeti* occurs at Wimbledon, Esher, Balcombe, Mickleham, New Forest, &c., but *longicollis* has not been found, so far as I know, nearer south than Chat-moss.

GRAPTODERA HELIANTHEMI, All.

This insect is in our lists, but not in our collections; and the supposed exponents of it are, I believe, *oleracea*. It is, however, not uncommon, though rather local, occurring at Chat-moss, Wimbledon, Barnes, Chatham, Cobham, Hanwell, and Ryde, almost always on *Epilobium (angustifolium)*, especially). Specimens from some of these localities have been returned to me as this species by M. Allard. I am indebted to Mr. J. Chappell for the only ♂ that I have seen, of which the intromittent organ differs much from that of *oleracea* and *montana*. It may readily be known from *oleracea* by its more violet or dark blue colour, rather duller and comparatively shorter elytra, and narrower thorax. The specific name affords another instance of the in-

advisability of attributing one plant to an insect: it was first found on *Helianthemum guttatum*, then on *Poterium muricatum*, and now on *Epilobium*.

GRAPTODERA OLERACEA.

The common insect originally known to us by this name, and afterwards referred to *pusilla*, Dufts., must, according to M. Allard, who has examined some of my specimens, revert to its former appellation. Continental examples of *oleracea* sent to me by that authority also entirely accord with our insect. M. Allard corroborates our *G. montana*.

THYAMIS FERRUGINEA, Foudr.

This species was recorded as British by the late Mr. G. R. Crotch, but is not included in Dr. Sharp's Catalogue, on account (I presume) of the reference of Dr. Power's exponent of it to *T. Waterhousii*, Kuts. M. Allard, however, has returned to me as *T. ferruginea* two examples, one belonging to Mr. Champion (taken at Caterham, July, 1873) and another from my own collection (I have two specimens). These may readily be known from *T. flavicornis* and *pellucida* by their smaller size, and much stouter antennæ, of which the five or six apical joints are blackish; and from the latter also by their much coarser punctuation. From *T. Waterhousii*, in which the apical joints of the antennæ also are blackish, they may be known by their smaller size, rather stouter antennæ, and more coarsely punctured thorax and elytra, which are much narrower and of less gelatinous appearance.

Thyamis atriceps, *cerina*, and *medicaginis*, are corroborated as British by M. Allard.

PSYLLIODES INSTABILIS, Foudr.

Corroborated as British by M. Allard, from a specimen in my collection. This insect differs from *P. cuprea* in its smaller size, darker colour, stouter and darker legs, and more shining head and thorax, of which the punctures are not so close.

Parkfield, Putney, S.W.

October, 1875.

STRAY NOTES ON THE *LEPIDOPTERA* OF PEMBROKE.

BY C. G. BARRETT.

In removing into a new and unworked locality, there is always the excitement of hope that, even if it do not prove very prolific of good insects, there may at any rate be much in the way of very local species to reward energetic research; and when that new locality is far removed from the well-worked districts, and seems from its physical features well suited for insect life, that hope is apt to be heightened into expectation.

I certainly experienced this feeling of hope very strongly, on coming down to this extreme western point of South Wales early last spring, and when I began to see the natural features of the country—a fine stretch of bold rocky coast, indented here and there with sandy bays, on the south; an inner coast (of the noble Milford Haven), parallel with it on the north; its waveless margins lined with narrow strips of salt marsh, and backed occasionally with huge, partially exhausted, quarries; and the cultivated intermediate country, intersected with pleasant lanes, in which an unusual wealth of wild flowers grows,—expectation began to rise high, and to prepare the way for—complete disappointment.

Of *Rhopalocera* but few species can be expected so far west; *Lycæna Argiolus* flies about the holly and ivy; and I have seen *L. Alsus* in the quarries, where *Syrichthus Alveolus* and *Thanaos Tages* occur commonly.

Argynnis Aglaia and *Selene* fly on the coast and over the mountain heaths, and *Paphia* occasionally ventures to show itself in some deep and sheltered valley, when the sun is warm and the brambles full of blossom. Some of the common species are plentiful enough, and show a tendency to variation, which is interesting. Of *Anthocharis cardamines*, I casually took a specimen which has the orange tips suffused down the nervures with blackish in a striking manner; *Lasiommata Aegeria* is dark and richly coloured; *Satyrus Tithonus* appears to exhibit additional spots in the pale portion of the upper-side of the hind wings (but this was overlooked until the species was worn out, and requires further investigation), and from the rarity of aberration among the *Vanessæ*, a *V. Io* with a pale yellowish cloud in the chocolate of one fore wing, and *Atalanta* with an extra white dot appear worthy of record. *Nocturni* were few indeed! the larger *Sphinges* being proportionately better represented than any other group, since *ocellatus* is reported common among willow; *Elpenor* among *Epilobium*; *ligustri*, of course, in the gardens, and *stellatarum* everywhere; *Atropos*

is said to be common in some seasons, in the larva and pupa states, and the larva of *convolvuli* is sometimes found, indeed a specimen, in the last stage of starvation, was brought me in the autumn. It was recognizable and that was all.

Of "clear-wings" I have seen but one species—*ichneumoniformis*. It was swept up by accident, one day in July, when working for *Tortrices*, and proved to be tolerably common among *Lotus corniculatus*. It is a curious fact, that it seems almost impossible to see a specimen at rest on or among its food-plant. I fancy they must sit *under* the leaves or flowers, like *Nemotois scabiosellus*. At any rate, the only way to get them was to "sweep," and this was useless until after 6 p.m. During the forenoon or afternoon sunshine it was impossible to find a specimen on ground from which a dozen might be swept up at seven o'clock in the evening. Its flight even appears to be almost crepuscular, for the only specimen that I saw on the wing was flying rapidly over a high bank at half-past seven in the evening, and looked, in flight, like a large *Tortrix*. I shall not soon forget my surprise at finding what species I had captured in this manner. I have a notion that *Sesiæ* fly at an inconveniently early hour in the *morning*, but this crepuscular habit is new to me.

Bombyces also are nearly absent, but a few *Nola cristulalis* occurred on tree trunks in May; when also I found a solitary ♂ *Diaphora mendica*, and *Lithosia complana* and *griseola*, also singly, in July. Here again poverty of species is redeemed in some measure by variation, for a pupa of *Odonestis potatoria* produced a most beautiful chocolate coloured ♂, nearly as dark as *G. quercifolia*.

Geometræ are very far from numerous or valuable, but curiously enough several of the best species have appeared principally in the garden and little shrubbery at the back of the house. In May, and again in August, *Lobophora viretata* may often be found, more or less faded and worn, at rest on the trunks of a couple of sycamore trees in a sheltered corner, but really fine specimens are scarce enough, for the damp affects their colour in the day. Here also *Eupithecia virgaureata*, *dodonæata*, and *coronata* have occurred; *Acidalia promutata* sits on the lime-stone rocks in the quarries, as also does the chalk-loving *Eubolia bipunctaria* in plenty, and *Acidalia subsericeata*, *Aspilates citraria*, and *Eupithecia absynthiata* are found sparingly among the herbage in the same localities; *Melanippe galiata* is common on the outer coast, and *Emmelesia affinitata* not scarce in the lanes. Still, the general absence of species is remarkable; for instance, on June 19th, I walked eight or ten miles through a hilly, well wooded district, with good hedges

and plenty of shelter, and the only *Geometræ* that I saw were one *Boarmia repandaria* and hosts of *Melanippe montanata*; fortunately the *repandata* was the var. *fimbriata*, and some of the *montanata* were fine dark barred varieties, but the barrenness in insects of such a country, at such a time, is perfectly astounding.

I think I could write a long and interesting chapter on the *Noctuæ* that *do not* occur here,—but ought to. I have not been able yet to work the outside cliffs, and there may be something *there*, but at present the record is meagre.

The attractive qualities of the red valerian (*Centranthus ruber*) to *Noctuæ* are well known. The hills of waste material in some of the great quarries by the Haven are covered with it, so are the old walls all along the back of the town, so is the railway embankment for hundreds of yards (looking splendid from the mingling of large masses of the white variety with the red flowers), and the result is—*exclamationis*!! I went down to the quarries one evening in June to collect at these flowers: dusk came, and *Noctuæ*, flying as *Noctuæ* will fly when they throw off their day's lethargy; I caught one—*exclamationis*,—I caught another—ditto,—I caught a third—the same,—there was no need to catch any more, they were swarming all around me, and all the same. I never saw such numbers before. I waited till after dark, and swept the valerian flowers—*exclamationis* in hundreds,—everything else was discouraged; *segetum* hardly ventured to show its face; a single *corticea* was a grand capture. Further attempts did not mend matters; *exclamationis* was more abundant than ever, and when it began in the course of nature to die out, was succeeded by *Xylophasia polyodon* in such countless hordes that collecting became positively wearisome. In all the hosts of *polyodon* I did not see a dark variety even. What valerian flowers may furnish in the future is problematical, this year they produced nothing but disgust!

I tried raking the sand-hills in the bays of the outer coast—Tenby, Manorbier, &c.—and took two *Mamestra albicolon*, and two *Leucania littoralis*, that was all; not another *Noctua* worth boxing. Of course, there were *Melanippe galiata* and sundry *Gelechiæ* and *Depressariæ*; but of the teeming abundance of *Agrotis*, for instance, usually found in such situations, there was *not one, not even tritici*! Two or three pupæ did tumble out one day from among the overhanging roots, and in due time produced *Epunda lichenea*, but even this species did not appear to shelter in the perfect state under the banks.

The autumn *Noctuæ* may have come to an untimely end—by water—I cannot say. I have certainly seen one *Luperina cespitis* at a

gas lamp, but the abundance of ivy which crowns many of the old walls, and fills the hedges, has not as yet produced a single insect worth boxing. When I say that all I have seen upon it have been two or three *Phlogophora meticulosa*, *Xanthia ferruginea*, and *Plusia gamma*; that the only moth seen flying along the road for a month past was a solitary *Orthosia lota*, and that gas lamps produce nothing but a heart-broken *Anthocelis pistacina* or two; I think I have expressed the lowest depths of poverty and degradation to which an unhappy entomological locality could well be reduced.

Of *Pyralidæ* and *Crambina* I have little to tell. The one new *Pyralis* was not kept in countenance by any other species worth taking. Odd specimens of an early brood of *Scopula ferrugalis* appeared in June; this I have only once before noticed. The *Crambina* were a little better. *Homæosoma sinuella* appeared at Tenby in June; and in August I found what I believe to be its larvæ in heads of various thistles. *H. saxicola* also appeared sparingly in the quarries with *Oncocera ahenella*, and *Pempelia marmoreæ*. *Anerastia lotella* was of course common on the coast sand-hills; and a salt marsh produced a single *Crambus contaminellus*. The eternal wind along the Haven makes these salt marsh insects very difficult to disturb.

Of *Pterophori*, *microdactylus* flying among *Eupatorium* in the evening, and the larvæ of *lithodactylus* reducing to skeletons the leaves of *Inula conyza*, were almost the only species noticed.

Nearly all that I have so far remarked upon has belonged to the coast district of mountain limestone, but thirty miles up the country is a very different region of wild mountain heaths, where a few local species are, I expect, to be found in plenty. Driving along the flank of Preselly Mountain, at the end of May, I saw *Melanippe tristata* commonly, and at the sheltered side of a bank found *Coccyx vacciniana* flying in abundance in the sun, and settling on the *Vaccinium* plants so quietly that I was able, with no apparatus but a few pill boxes, to secure a dozen specimens in a few minutes; a month later *tristata* was still out, and now accompanied by *Acidalia fumata* and *Cidaria populata*, but *vacciniana* had disappeared, and the only *Tortrices* of interest to be seen were a very fine *Amphysa Gerningana* and the small grey variety of *Sericoris lacunana*, which was formerly mistaken for *rupestrana*.

I saw there what I do not think is very common, the three forms of the pretty little milkwort (*Polygala vulgaris*)—red, white, and blue,—all growing on one bank, and united to some extent by intermediate variations.

DESCRIPTION OF TWO NEW EXOTIC ACULEATE HYMENOPTERA,
OF THE FAMILIES THYNNIDÆ AND CRABRONIDÆ.

BY C. RITSEMA.

ÆLURUS FLAVO-PICTUS, *sp. n.*

Male. Length 12 mm.; alar expanse, 18 mm.

Black; the apex of the clypeus (terminating a longitudinal central carina), the little lobe at the base of the cheeks, an interrupted line between the insertion of the antennæ (bordering on elevation), and another on the anterior margin of the prothorax, the central portion of the tegulæ, the post-scutellum, and the apical spines of the tibiæ and of the joints of the tarsi, pale yellow; a spot a little before the tips of the mandibles, some spots on the abdomen beneath, and the claws of the tarsi, reddish-brown.

The head and thorax closely and strongly punctured, thinly covered with cinereous pubescence; head transverse, wider than the thorax, the posterior margin of the cheeks fringed with long silvery hairs; the face before the insertion of the antennæ with a whitish pubescence; the thorax attenuated behind, the scutellum gibbous, the metathorax rounded; the wings hyaline, clouded at the apex, the stigma and nervures black; the coxæ, tibiæ, and tarsi closely covered with short, the femora thinly with long, grey pubescence; the claws of the tarsi bifid.

The abdomen depressed and petiolated, smooth, and shining, very sparingly covered with fine punctures and cinereous hairs; the first segment a little swollen at the apex, the second with an impression at the base, and, as well as the four following, with two faint tubercles a little before the hind border; the ventral scale of the apical segment terminating in a trifid mucro.

Five males sent by the Baron von Rosenberg from Aru, four of which are in the Leyden Museum, the fifth in Mr. F. Smith's collection.

In addition to this species, the genus *Ælurus*, Klug (*Tachynomia*, Guér.) is represented in the Eastern Archipelago by two other species, viz., *Ælurus comitus*, Smith, from Waigiou, and *Ælurus fragilis*, Smith, from Mortai.

PSEN ORNATUS, *sp. n.*

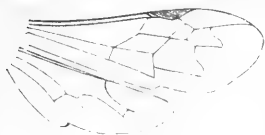
Female. Length, 10 mm.; alar expanse, 15 mm.

Head and thorax black, adorned with yellow; abdomen red.

The head black, smooth, and shining, impunctate, with a sharp carina between the antennæ; the face before the antennæ and the cheeks covered with silvery pubescence; the mandibles yellow with brown tips; the antennæ rather long and slender, the scape yellow, the flagellum fuscous above, pale ferruginous beneath, becoming fuscous towards the apex.

The thorax black, above smooth and shining, with some very fine punctures, the sides somewhat opaque and, as well as the thorax beneath, thinly covered with whitish hairs; the metathorax coarsely rugose; the prothorax yellow above, the mesothorax with two parallel lines not reaching the scutellum, the tegulæ, a spot before the base of the wings, two spots on the scutellum, and the post-scutellum.

yellow; the metathorax with four longitudinal oval yellow spots; the wings hyaline, the stigma and nervures brown, the neuration as in figure; the anterior and intermediate legs yellow, the coxæ and the femora and tibiæ behind spotted with brown; the posterior pair brown, with the tip of the coxæ, the second half of the femora beneath, and the base, and the apical spines of the tibiæ, yellow.



The abdomen smooth and shining, red, with the second half of the petiole and the apical segment beneath dark brown.

A single female, captured by Mr. Hekmeyer near Mount Ardjoens (East Java), in the collection of the Leyden Museum.

This is the third species of the genus *Psen* from the Eastern Archipelago, Mr. F. Smith having described a species (*Psen erraticus*) from Macassar, and another (*Psen petiolatus*) from Mysol.

Leyden: October, 1875.

AN ADDITION TO THE LIST OF BRITISH HEMIPTERA.

BY EDWARD SAUNDERS, F.L.S.

LOPUS SULCATUS, Fieb., Eur. Hem., 268, 4.

Black; a spot on each side of the head near the eye; dorsal line and the sides of the thorax in front, the centre of the scutellum, the sides of the corium in front, and the cuneus (except at the apex), pale ochreous, the latter suffused with orange colour outwardly; membrane, in developed specimens, black.

Easily distinguished from our other species by the following characters: from *gothicus* by the shorter pubescence, in the absence of the long hairs on the thighs and antennæ, the narrower form, the thorax constricted in front and its sides more sinuate, by the sulcate scutellum, as well as by the pale (not red) cuneus and scutellum: from *mat*, Rossi, by the pilose elytra, the constricted thorax (which has the sides only pale in front), the sulcate scutellum, and the thighs without pale bands.

Long. $2\frac{3}{4}$ —3 lines.

Portsmouth (Moncreaff), also at Slapton.

I have had a bad example of this species in my collection for some time, but have not hitherto brought it forward, not feeling sure that it was the true *L. sulcatus*; but lately I have had an opportunity of seeing Dr. Fieber's type in M. Lethierry's collection, and am satisfied that our insect belongs to his species. It has been found by Mr. Moncreaff at Portsmouth, both in the developed form with the entire membrane, and also without. I have found the species not rarely on the Continent near Tours.

2, Spencer Park, Wandsworth:
December 1st, 1875.

Note on the habitat of Dicranoneura citrinella.—In September last I again found this species common in the gravel-pit at Blackheath, where I originally took it, and traced it without a doubt to *Teucrium scorodonia*.—J. W. DOUGLAS, Lee: December 6th, 1875.

On the metamorphoses of Melœ cicatricosus and Cantharis vesicatoria.—M. Lichtenstein, in a letter dated 14th August, communicated to the Société entomologique de Belgique, says that he was unable to give the continuation of the history of *Melœ cicatricosus*, the larva having died in its second form without changing its skin (*vide ante* p. 136). But he goes on to say:—

“On the other hand I have had the pleasure, this morning, to obtain the second form of the larva of *Cantharis vesicatoria* by means almost the same as those employed with the *Melœ*. In this instance the “triungulins” were not yellow like those of *Melœ*, but black with a white cincture (the last two thoracic annulations, and the first ventral segment, are white). The second larva form is soft and white, hexapod, and very like that of *Melœ*.”—[From the *Compte-Rendu de la Société entomologique de Belgique*, 2nd October, 1875].

“Halesus digitatus.”—In the months of September (end), October, and November (beginning), large Trichopterous insects of rather pallid (testaceous) colour, with somewhat striated anterior-wings, are not uncommon in the vicinity of streams in Britain, and even in the neighbourhood of London they may be seen on the gas-lamps. These have been commonly known by the name at the head of this note, and under this name they have been noticed by all the most modern writers on *Trichoptera* (including myself), without the least idea that more than one species was included under the term. This hallucination must come to an end. Having been recently engaged upon the genus *Halesus* for my “Revision and Synopsis of European Trichoptera,” a somewhat disagreeable fact has forced itself upon me, viz., that three thoroughly distinct species are included under the name; and, moreover, that two of them occur in Britain, and are probably equally common. Which may be considered the real *digitatus* depends upon information to be received from Austria, for the name is one of Schrank's, in his “Enumeratio,” and thus should naturally be reserved for the most common Austrian form. Any way it is satisfactory to know that (according to evidence furnished by types) no newly coined names will (apparently) be required. Reserving the application of the term *digitatus* for the moment:—

No. 1 is *radiatus*, (Leach) Curtis, = *digitatus*, Steph. (*partim*), = *interpunctatus*, Zett.

No. 2 is *tessellatus*, Rambur (according to type), = *digitatus*, Brauer (?), and Walser (according to type).

No. 3 is *hieroglyphicus*, Curtis, = *digitatus*, Steph. (*partim*).

Nos. 1 and 2 extremely resemble each other in general appearance, and are to be (apparently) separated only by the anal characters. In *radiatus* (which is possibly the true *digitatus*) the inferior appendages of the ♂ are blunt, black, and broadly sinuate at the apex: it is the most common northern species. In *tessellatus* the inferior appendages are long, somewhat lanceolate, slightly curved, acute; it appears to be Central European (not occurring in Britain). *Hieroglyphicus* is generally

larger than the others, paler (more testaceous) in colour, and with the wings longer and less obtuse; the inferior appendages broadly furcate. In Britain, this is probably equally common with No. 1, but is possibly less generally distributed.

It was gratifying to me to find that a new correspondent (Mr. F. G. Binnie, of Glasgow), who informed me that he worked only from books, had detected the differences in the two British species.—R. McLACHLAN, Lewisham: 4th December, 1875.

Sphinx convolvuli in Berwickshire.—On the 15th August I netted a fine specimen of *Sphinx convolvuli* which was flying over some carnations in a garden. I observed another there about a week after, but only for two or three seconds, as it flew over a high wall and disappeared. Another specimen of this fine moth flew into a draper's shop in a village near there some time ago; it was sadly worn. On the sign-board of the same shop, one evening in September, an entomological friend of mine caught a most beautiful specimen of the same moth by putting a paper bag under it and pushing it in. That night, as I was walking with my friend down the street of a small town near the same place, we saw a crowd collected before a shop window, and soon found the cause of it. A large Death's Head Hawk Moth (*Acherontia Atropos*) had flown in, been caught by the shopman, and imprisoned in a glass bottle. My friend purchased it, and set it. Though slightly rubbed, still it forms an excellent specimen.—W. SANDISON, 43, Govan Road, Glasgow.

European and exotic Lepidoptera.—Dr. Staudinger has sent me a packet of his priced Catalogues for distribution. I shall be happy to send one of these Catalogues to any entomologist who may wish for one. I may observe that it would seem to be much more sensible to buy a typical continental specimen of *Notodonta bicolora* for eight pence, than to give four or five pounds for an English specimen of more than doubtful authenticity; but I am aware that tastes differ on this point.—R. C. R. JORDAN, 35, Harborne Road, Edgbaston, Birmingham: December 8th, 1875.

ENTOMOLOGICAL SOCIETY OF LONDON: 1st December, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

T. Chapman, Esq., of Glasgow, was elected a Subscriber.

Mr. Forbes exhibited specimens of *Zygæna filipendulæ* in which the usual red spots and hind-wings were changed to yellow. He had bred these, although only one or two appeared among myriads of the ordinary form, and was quite sure that the variation was in every way natural, and not caused by extraneous circumstance.

Mr. Champion exhibited new or rare British species of *Anisotoma*: these were already noticed, with others, by Mr. Rye in the December number of the Ent. Mo. Mag.

Mr. W. Cole exhibited beautiful drawings of dipterous larvæ found on the shore at Southend; also the larvæ and perfect insects in spirits. They apparently pertained to the genus *Ephydra*.

The President remarked that M. Lichtenstein, of Montpellier, had recently obtained *Zonites præusta* and *Euchalcis vetusta* from *Osmia tridentata*, making thirteen parasites known to exist at the expense of that species (cf. ante, p. 71).

Dr. Burmeister, of Buenos Ayres, communicated a description of a new genus and species of *Scaritidæ*, under the generic name of *Obadius*, from the river Uruguay.

DESCRIPTIONS OF FIVE NEW, OR LITTLE KNOWN, SPECIES OF
BRITISH TENTHREDINIDÆ.

BY P. CAMERON, JUN.

NEMATUS FLAVIPENNIS, *sp. n.*

N. niger, nitidus, breviusculus, crassiusculus; facie inferne, orbitis oculorum lute, tegulis, pronoti angulis, ano, ventre pro parte, pedibusque rufo-flavis; alis flavescentibus. Long. $2\frac{1}{4}$ — $2\frac{1}{2}$ lin.

♀. Antennæ longer than the thorax and abdomen, black, bare, almost shining; 3rd and 4th joints nearly equal; the remaining joints a little shorter, and tapering towards the apex. Head with frontal sutures very distinct, punctured in front, the part between the antennæ strongly projecting; black, the face (including the portion between the antennæ) and the eyes (especially behind) broadly surrounded with reddish-yellow; mandibles deep brown. Thorax black, shining; the pronotum edged with obscure yellow; cenchri large, white. Abdomen broad, dilated towards the middle, the apex bluntly pointed; the colour black, smooth and shining; the anus and ventral surface in the centre reddish-yellow. Cerci moderately long, pale yellow, their apices pointing inwardly; saw slightly projecting. Feet reddish-yellow; coxæ partly, and femora at base, more or less marked with black; the three last joints of posterior tarsi fuscous. Wings ample, strongly iridescent, yellowish; nervures, costa and stigma reddish-yellow; 2nd sub-marginal cellule nearly double the length of the 3rd, which is scarcely dilated at the apex; 2nd recurrent nervure received a little in front of the 2nd sub-marginal.

This species agrees very closely with the description of *N. brachynotus*, Förster, Verh. pr. Rheinh., 1854, p. 295, pl. 5, fig. 13, but must be different, as that species is considerably larger, has brownish tarsi, shorter antennæ, "ein wenig kurzer, namentlich als der Hinterleib," and in the rather long description no mention is made of the wings being yellowish. Of the British species it has the greatest resemblance to *N. Zetterstedti*, Dbm., = *miniatus*, Htg., but it is also larger, and has the belly completely red, with the posterior tarsi black.

One specimen, taken in June at Rannoch, and two at Kingussie; in both places by sweeping in marshy ground.

NEMATUS BACCARUM, *sp. n.*

Niger, subnitidus, ore, pronoti limbo, tegulis, costa, stigmatibusque albidis; ano testaceo; alis hyalinis. Long. fere $1\frac{1}{2}$ lin.

♀. Antennæ shorter than the body, comparatively thick, tapering towards the apex; the colour black, obscure brown at apex; the 3rd and 4th joints about equal; the last joint thinner, and apparently a little longer than the 8th. Head black, shining, the vertex finely punctured; the labrum and clypeus partly white; mandibles blackish; on the lower side there is a broad pale ring surrounding the eyes. Thorax black, shining; mesonotum finely punctured; pronotum thinly edged with

white; tegulæ white. Abdomen obscure black, the anal segment above, and the ventral surface, more or less pale testaceous; cerci white, projecting outwardly; sheaths of the saw projecting, hairy. Feet white; coxæ black at base; femora, at base, obscured with fuscous; posterior tarsi longer than the tibiæ, and very faintly fuscous. Wings hyaline; costa and stigma white; nervures pale; 3rd sub-marginal cellule dilated at apex; 2nd recurrent nervure received about the length of a fourth of the size of the 2nd sub-marginal cellule in front of the 2nd sub-marginal nervure.

This species belongs to a very obscure group of saw-flies; and if I did not know its early stages, I would not have undertaken its description. It comes nearest to the descriptions of *N. helicinus* and *N. crassipes*, Thoms., from both of which its much smaller size, and white legs and stigma, well serve to distinguish it; and the 2nd recurrent nervure being placed at some distance in front of the 2nd sub-marginal, affords another good mark of separation.

I bred it from a berry-shaped gall of a greyish-green colour, covered closely with fine white hairs, which Dr. White sent me from the neighbourhood of Dunkeld, where it was found by him on the leaves of a willow—what species I do not know; but the leaves were not unlike those of *Salix aurita*. The larva was white, with the head obscure fuscous; eye-spots black; mouth brown; and the segments projected considerably. Previous to pupation, I noticed that the end of the body was rather sharply pointed; the colour was dirty white. They fed up to the end of October, when their cocoons were spun, attached to the bottom of the breeding jar. They did not make a hole for the expulsion of the frass, which is very fine and powdery. Neither did they, previous to spinning, become of a slate colour—thus differing from the larvæ of *helicinus*.

The pupa is white. The imago made its appearance on the 1st May, about two weeks after becoming a pupa.

NEMATUS CRASSIPES, Thoms., var. VACCINIELLUS, Cam.

♀. Antennæ shorter than the body, black, stout, very slightly tapering towards the apex; 3rd and 4th joints equal. Head black, finely punctured on the vertex; sutures distinct; mouth and eyes (especially behind) surrounded with pale testaceous; mandibles brown. Thorax black, shining; tegulæ white; pronotum broadly edged with white; parapsides shining, in certain lights seen to be covered with a fine down; cenchri pale white. Abdomen black; apex mucronate; cerci moderately long, white; anal segment pilose; above, and the last three segments at the sides, and underneath, dirty testaceous. Feet whitish-testaceous, covered with whitish down; posterior tarsi shorter than the tibiæ; last tarsal joints fuscous. Wings hyaline; costa and stigma white; nervures pale fuscous; the 2nd recurrent nervure nearly joined to the 2nd sub-marginal. The femora have a fuscous tinge in the middle. Length, 2 lines.

The ♂ has the antennæ longer than in the ♀, and also pilose; the coxæ and

femora for the greater part black ; posterior tarsi black ; and the abdomen above is brownish at the junction of the segments. The head is quite black, with the mouth obscure testaceous.

This insect was bred by Mr. C. Healy (to whom I am indebted for specimens) from galls on *Vaccinium vitis-idaea*, found by Mr. Eedle in Scotland ; and has been referred by Mr. Newman to his *Euura gallæ*. Mr. Newman, of course, ought to be well acquainted with his own species ; but, so far as his description goes, it is not detailed enough to enable this, or indeed any species, to be identified with it, at least with any certainty ; and it therefore must be entirely ignored. It agrees tolerably well with Thomson's description of *crassipes*, except that his species has not the eyes surrounded with luteous, and no mention is made of the pronotum being white. *Crassipes* was split off by Thomson from the *N. helacinus* of Brischke ; and he quotes Brischke's account of the gall-making habits of his species for *crassipes*, and not for *helacinus*, although that is also described. If *crassipes* has actually been bred from willow-galls on *Salix helix*, then I think it highly probable that the Scotch insect is distinct ; but, in the absence of types, and of definite information regarding the early stages of *crassipes*, I think it safest in the meantime to consider it as a variety only. Should it ultimately prove to be distinct, I propose the name of *vacciniellus* for it.

I may add that neither Thomson's description of *helacinus* nor of *crassipes* agrees with a specimen of *helacinus* = *vesicator*, Bremi, which I received from Herr Brischke.

NEMATUS SHARPI, sp. n.

N. niger, nitidus, antennis subtilis et orbitis oculorum rufescentibus ; ore, pronoti, stigmatæque albidis, pedibus rufo-testaceis, alis hyalinis.

Long. $2\frac{1}{4}$ lin.

♀. Antennæ about the length of the body, black, underneath reddish, especially at the apex, where they taper considerably ; the 3rd and 4th joints equal. Head with the vertex finely punctured, black, slightly surrounded with reddish-brown, as well as a spot between the antennæ ; mouth, including half the clypeus, my larvæ clypeus moderately arched ; mandibles brownish. Thorax black, pronotum f *æthiops*, white, mesonotum slightly punctured, covered with a short whitish down, sideways ; parapsides covered also with down ; cenchri small. Abdomen s. broad, about the size of the head and thorax, apical half abruptly ~~near~~ to great faintly pale, hairy ; cerci long, pale whitish, pointing outwardly i sections will Feet reddish-testaceous, coxæ and trochanters paler, posterior tarsi n all be easily than the tibiæ. Wings clear hyaline, costa and stigma whitish, th faint border of brown on the under-side ; nervures pale, 2nd recur considerably in front of the 2nd sub-marginal.

In the structure of the wings and antennæ, *N. Sharpi* resembles *N. appendiculatus*, Htg., but it is easily known from it by the shorter body, more abruptly pointed abdomen, half white clypeus, and eyes surrounded with red. In form, it is not unlike *N. flavipennis*, but the eyes are only slightly surrounded with brown, the wings are clear hyaline, with the stigma white, and there is no black on the femora.

Taken by Dr. David Sharp, probably in Scotland, the exact locality I do not know.

ERIOCAMPA ÆTHIOPS.

In the Entomologist's Annual for 1862, and previously in the Gardener's Chronicle for 1848, Prof. Westwood describes the transformations of a saw-fly which he calls *Selandria æthiops*, Fab. Until the present year this rose-feeding species was an enigma to me, and no doubt also to others; but in August, Mr. J. E. Fletcher of Worcester very kindly sent me both the imago and larvæ, and on consulting the above mentioned works I had no difficulty in identifying them with Westwood's insect. I am not, however, equally sure that it is the true *æthiops*, for, although it agrees with the description so far as it goes, yet so do also other species of *Selandria* (*sensu lat.*), as well as another species I have of *Eriocampa*. In this state of matters, my first intention was to regard it as a new species, but I have thought it perhaps better for the present to treat it as the *æthiops* of Fabricius. Fabricius described his species from an English insect in the Banksian cabinet, but unfortunately it is not now there, as Mr. F. Smith informs me, the type having been either lost or destroyed. Mr. Smith also tells me that there is an *Eriocampa* in Stephens' collection bearing the MS. name of *consorta*, which is very like, if not actually identical with, the present insect. The rose insect is a true *Eriocampa*, and to avoid any more confusion, I now recharacterize it, and I can only express a hope that there will be no further ambiguity about it:—

the apc

sutures dis.

mandibles !

with white *nigra, nitida, genubus, tibiis, tarsisque 4-anticis albidis; alis*
cenchri pa *tis.*

Long. 1 3/4-2 lin.

anal segment *punctus* to the section comprising *cinxia*, Klug, *atratura* (Dbm.),
dirty testaceous. *estaceipes*, Cam. *Cinxia* has all the tibiæ white at the
tarsi shorter than *æthiops* the four anterior tibiæ along with the tarsi are
stigma white; n
2nd sub-margir e posterior black, except that the knees are a little paler;

The ♂ is easily known from it by its testaceous hinder tibiæ and

tarsi. *Atrātula* I do not know ; but, as it is described as having only the anterior tibiæ luteous, it can scarcely be confounded with our insect. The wings in *æthiops* are darker at the base, and do not differ essentially from those of *testaceipes*: in *cinxia* the wings are darker in the middle. It is unnecessary to distinguish it from *E. annulipes*, *varipes*, and *adumbrata*, as they are readily known by having two middle cellules in the posterior wings, while in the present species and its allies there is only one cellule.

In the same papers, Prof. Westwood states that *E. æthiops* is distinct from the *æthiops* of Klug and Hartig, which is a *Blennocampa*, and he further mentions that the slimy larvæ of the pear (commonly called in England "*Selandria cerasi*," notwithstanding that the *cerasi* of Linné has luteous legs) pertain to the *Selandria atra* of Stephens. I do not mean to question the accuracy of this observation, and it is likely enough that *atra* is really attached to the pear ; but my own observations (agreeing with those of continental observers) undoubtedly lead me to conclude that the common garden pest is, in point of fact, the *Eriocampa adumbrata* of Klug. According to Thomson (Hymen. Scand., i, 213), the *æthiops* of Klug is a variety of *Blennocampa ephippium*, Pz., with the pronotum black ; and I believe he is quite correct. Until I see Stephens' types of *atra*, I can say nothing definite regarding it. I recommend the careful breeding of the slimy larvæ of the pear and plum trees to those who may have the opportunity of doing so, and thus settle once and for all the question whether they belong to species other than *Eriocampa adumbrata*, and if so, to ascertain how the larvæ of the different species may be distinguished from one another.

To Professor Westwood's account of the habits of *æthiops*, I can add nothing, beyond confirming it ; but I may mention that Mr. Fletcher's larvæ remained eighteen months and mine two years in the cocoons before changing.

I have bred *E. annulipes* from slimy larvæ on *Salix viminalis*, and Mr. Fletcher bred *E. varipes* from like larvæ on the oak. We have thus in *Eriocampa* three different kinds of larvæ, namely : slimy larvæ like those of *adumbrata*, the yellowish-green slimeless larva of *æthiops*, and the white flaky larva of *ovata*.

Hartig's system of genera and sub-genera is apt to lead to great confusion, and I hope that for the future his named sections will be regarded as distinct genera, more especially as they can all be easily made out.

DESCRIPTIONS OF TWO NEW BRITISH *ICHNEUMONIDÆ*.

BY THE REV. T. A. MARSHALL, M.A., F.L.S.

Mr. Cameron has requested me to describe the following insects, which I some time ago returned to him as new species.

LIMNERIA CROCEIPES, *n. sp.*

L. parum nitida, alutacea, subtiliter sericea, nigra; antennarum scapo subtus rufescente; ore, mandibulis, palpis, alarum radice, squamulis pedibusque late flavis; coxis anterioribus basi rufescentibus, femoribus anterioribus fulvo tinctis; coxis femoribusque posticis nigris; tibiis posticis apice fusco-rufis; alis sub-hyalinis, stigmatate et nervis fuscis, his basin versus flavidis; terebra breviter exserta.

♀. Long. $2\frac{1}{4}$ lin.

Caput transversum, pone oculos angustatum. Oculi juxta antennarum insertionem levissime tantum emarginati. Antennæ apice mutilatæ. Thorax capite angustior, sat robustus, lateribus parce albido-sericeus, alutaceus; metathorace ruguloso, medio haud excavato, arcis duabus superioribus lateralibus tantum distinctis. Abdomen apice modice compressum, segmento 1^{mo} pedum posticorum coxis cum trochanteribus longitudine subæquali; postpetiolo transverso, parum convexo; segmento 2^{do} haud longiore quam latiore, gastrocœlis pellucidis; terebra sursum curvata, testacea, abdomine haud altiore. Alæ areola nulla; nervo radiali externo recto; transverso anali haud fracto. Unguiculi non pectinati.

From Cadder Wilderness.

It belongs to Holmgren's Sec. II, Div. 1, Sub-div. 2. As this group is of very limited extent, and immediately recognisable by the want of the areolet, there is little difficulty in determining this species to be new.

BASSUS PERONATUS, *n. sp.*

B. nitidulus, punctulatus, metathoracis area superomedia elevata, acute marginata; abdominis segmento 1^{mo} lato, antice depresso, parum angustato, carinulis paulo ultra medium extensis; alarum nervo transverso anali longe infra medium fracto; niger, alarum squamulis albidis; pectore pedibusque fulvo-rufis; femoribus posticis fuscis; tibiis posticis (basi exempta), tarsisque posticis, nigris; scutello testaceo, fusco trimaculato.

♀. Long. $2\frac{1}{2}$ lin.

Caput transversum, thorace latius; facies deplanata, canalicula media nulla, tota nigra. Antennæ corpori longitudine æquales, nigro-fuscae, subtus testaceæ. Thorax nitidus, angustior quam apud B. pectoratorum; scutellum elevatum, testaceum, elevatione media maculisque duabus lateralibus elongatis fuscis; pleuræ nigrae; metathorax rugosus, arcis circiter quatuor distinctis. Abdomen capite cum thorace haud

longius, parum nitidum, segmento 1^{mo} cæteris omnino simili; segmentis omnibus postice exalbido subtiliter marginatæ. Pedes postici incrassati.

This species, having no transverse impressions on the anterior abdominal segments, no areolet of the wings, and the metathorax distinctly areated, is to be referred to Holmgren's Sect. II, A, a, a. It can only be confounded with *B. pectoratorius*, Gr., but differs in having the pleuræ black, the metathorax areated, &c. The name *peronatus* is meant to express the booted appearance of the hind legs. Bred by Mr. Cameron from the larvæ of *Nematus cadderensis*; see p. 127 of this volume.

Among the insects sent to me by this acute and indefatigable investigator of the economy of saw-flies, it is worthy of remark that two specimens of *Eumesius crassicornis*, Gr. (♂ ♀), occur, a rarity unnoticed here, I believe, since the time of Curtis.

An external parasite on the larvæ of *Nematus viminalis*, L., which Mr. Cameron sends for identification, is *Ichneutes reunitor*, Nees, var. *brevis*, Wesm. The specimens before me are only one-third of the size of the typical *reunitor*, with darker legs and palpi, the metathorax with one elongate sub-triangular area, the radial nerve straight, and the smooth space on the pleuræ rather larger. Notwithstanding these differences, Wesmael was of opinion that his *brevis* was not specifically distinct from the *reunitor* of Nees (see Nouv. Mém. Ac. Brux., 1838, p. 156). I suspect that this opinion is erroneous, but further observations alone can settle the question. Mr. Cameron informs me that he has reared the typical *reunitor* from the larvæ of *Cladius padi*, L. It is noteworthy, as to the distribution of these parasites, that specimens of the var. *brevis*, Wesm., were brought from Wide Bay, Spitzbergen, by the Rev. A. E. Eaton.

Lastingham, Pickering:

December 15th, 1875.

NOTES ON SOME BRITISH DOLICHOPODIDÆ, WITH DESCRIPTIONS OF NEW SPECIES.

BY G. H. VERRALL.

(continued from page 148.)

PORPHYROPS SIMPLEX, sp. n.

♂ ♀. *Aeneus, nitidus, facie albidâ; alulis flavido-albidis, albido-ciliatis; pedibus flavidis, coxis nigris, femoribus anterioribus aut nigris (♂), aut obscuris (♀) apice flavidis, posticis apice nigris (♂) aut obscuris (♀). tibiis modice setigeris; alis cinereo-hyalinis.*

Long. 2 lin.

♂. *Facie angustissimâ, albidâ, fronte cœruleo-viridi, palpis nigro-setosis, barbâ albidâ; tarsis anticis subsimplicibus, articulo basali vix apice incrassato et vix curvato, articulis tribus proximis longitudine subæquali; hypopygii lamellis elongatis.*

♀. *Cupreo, facie fronteque albidis; coxis anticis flavidis, basi cinereis, tibiis posticis apice obscuris.*

♂. A rather small species, slightly smaller than *P. consobrinus*, Zett.; arista nearly twice as long as the third joint of the antennæ, the latter being about three times longer than broad; eyes conspicuously hairy, with brownish-yellow hairs; face extremely narrow, almost touching in the middle, white just above and below that point; frons shining blue-green, with a whitish sheen; palpi small, concealed, but the rigid black bristles at their tips conspicuous; beard whitish, the single cilia round the upper part of the eyes black. Thorax shining green, scutellum a little bluish, breast-sides slightly silvery; abdomen duller green, with a slight silvery sheen, most conspicuous on the third, fourth, and fifth segments, the bristly pubescence rather dense, black, the hairs about the basal corners white; appendages long strap-shaped, slightly bristly; alulæ dull whitish-yellow, with white fringes, halteres whitish-yellow. Legs yellow, coxæ black, front pair clothed with black bristles, anterior femora black, yellow at the tip, hind pair black at the tip, and for nearly half their length on the upper side, front femora rather bristly, especially on the basal half beneath, front tibiæ bearing several bristles outside, just above and about the middle, basal joint of tarsi nearly as long as the next three joints, a little bent, slightly thickest and most bristly about the middle, and with very minute erect hairs beneath, the second joint very slightly bent, and all the joints gradually diminishing in length; middle coxæ with a tuft of black bristles at the end almost like a spine, middle femora rather pubescent, with two or three bristles near the tip, tibiæ bearing about three pairs of large black bristles on the upper half outside, about which the small bristles are absent, inside below the middle is, as usual, one bristle, basal joint of tarsi as long as, or slightly longer than the next two, all yellowish except the last; hind femora with one small bristle near the tip, tibiæ with one bristle outside about one-eighth the length from the base, and two or three others just about the middle not very conspicuous, just below which is a small denuded space, apex with two bristles outside, tarsi black, second joint longer than the first, third slightly shorter than first, fourth and fifth together slightly longer than third. Wings brownish-hyaline, discoidal vein distinctly bent and approximating, but parallel towards end.

♀. Coppery, sides whitish, face and frons white, the latter with a greenish ground colour, face rather narrow, sides nearly parallel, palpi whitish, with a few black bristles; legs yellow, coxæ blackish-grey, front pair yellowish with the base grey, bearing three black bristles at the tip, and a yellow one above, front femora dusky above, middle femora with one or two long black bristles near the tip, bristles on the anterior tibiæ almost as in the male, hind femora dusky above at the tip, hind tibiæ rather more bristly than in the male, slightly darkened at the tip.

Of the British species of *Porphyrops*, *pectinatus* is distinguished by its black face and beard, stronger and more regular pubescence on

the front femora, &c., and *consobrinus* by the pale hairs behind the front femora, and its entirely black hind femora, while both have different front tarsi; *fascipes* and *spinicoxus* have a black face and beard; *crassipes* has dilated middle tarsi; *antennatus* has a capitate arista; *elegantulus* is larger, with yellow anterior femora and blue tip to the abdomen; *nemorum* is smaller, with longer antennæ, black hind legs and more bristly front tibiæ; *gravipes* has black hind legs, and the following species, *tenuis*, has white-haired coxæ and femora, and yellow middle femora, while I think the diagnosis will distinguish it from any recognized continental species.

I caught one male and two females near Box Hill some years ago on September 5th; I think they were found on some stones on a flattish bank running out into the river Mole, near Burford Bridge.

P. *TENUIS*, n. sp.

♂. *Cupreo-æneus, angustus, facie candidâ, subangustâ, barbâ albâ; alulis albo-ciliatis; pedibus luteis, coxis nigris, albo-pilosis, femoribus anticis nigris, albo-pilosis, posticis apice nigris, unispinosis, tibiis modice setigeris, posticis nigris, tarsis anticis subsimplicibus, articulo basali apice vix incrassato, articulis reliquis longitudine subæquali; hypopygii lamellis latis; alis brunnescentibus.*

Long. 2½ lin.

Long, narrow, dark coppery-æneous; antennæ moderate, third joint about two and a half times longer than broad, second joint with a long bristle above, arista more than twice the length of the third joint, its own basal joint being also somewhat conspicuous; face narrow, silvery-white, sides almost parallel, frons greenish with a whitish gloss; eyes densely hairy with a tawny pubescence, palpi brownish with yellowish hairs; beard shaggy, white. Thorax coppery-æneous, with two indistinct dark longitudinal lines; alulae dirty yellowish, fringe long, white; abdomen long, narrow, coppery-æneous, becoming purplish on the fourth and fifth segments and greenish on the sixth, the base of each segment darkened, bristles on the disc black, but about the base and along the sides clothed with white hairs; lamellæ dirty brownish-yellow, hairy, broad, not short, somewhat truncate and ragged at the end, the lower corner with a produced point, and the upper corner pointed. Legs chiefly luteous, coxæ all blackish, front pair densely white-haired in front, hinder pairs white-haired, with a few black bristles at their tips, front femora blackish with a tolerably abundant, somewhat conspicuous, white pubescence behind, front tibiæ yellowish, with several bristles in front on the basal half, tarsi dull yellowish, darker towards the tip, basal joint nearly equal in length to the next four, slightly swollen at the tip beneath, middle legs luteous, thin, femora with the tip obscure above, and with a slight whitish pubescence beneath near the base, and about two somewhat inconspicuous black bristles near the tip, tibiæ bristly down the outside, tarsi darkening towards the tip, hind femora luteous, with the apical third black, especially above, one bristle near the tip, and a faint white pubescence beneath near the base, tibiæ black, slightly brownish down the outside, rather bristly, tarsi blackish, two basal joints about equal in length. Wings dark brownish, especially near the costa.

The luteous hind femora with black tips, the white face and beard, the blackish front femora and white-haired coxæ and femora, seem to distinguish this from any British *Porphyrops*, and I believe from any recognized European species. I caught two males at Rannoch, in 1870.

DIAPHORUS DORSALIS, n. sp.

♂ ♀. *Minutus, nigro-viridis, antennis, pedibus halteribusque nigris; fronte latâ, facie oris aperturam versus angustatâ, obscure viridi; antennis brevibus, articulo tertio lato, setâ dorsali; pedibus pubescentibus; alis nigricantibus.* Long. vix. 1 lin.

Small, dark green; frons broad, occupying more than one-third the width of the head, dull green, rendered lightish by the pale tomentum; face of the same colour, narrowing steadily towards the mouth, being there only about a quarter the width of the vertex, the space between the eyes, therefore, from the vertex to the mouth forming a blunt-ended triangle; antennæ short, the third joint being about three times broader than long (similar to that of *Chrysotus læsus*), the minutely but densely pubescent arista arises from about the end of the upper fourth, thus appearing distinctly dorsal; palpi dark brown. Thorax and scutellum green, rendered dull by tomentum, the bristles all black. Abdomen green, somewhat shining, with black bristles, and the usual long bristles at the tip on the hypopygium. Legs black, with abundant small black bristles, and scattered longer bristles, the pulvilli whitish-yellow, considerably elongated on the front pair, less so on the hindmost pair. Alulae with blackish edge and cilia, halteres black. Wings with a strong blackish hue and black veins, the discoidal runs parallel to the cubital, or even diverges slightly from it at the tip, and bears no signs of any flexure; the lower cross-vein is about two and a half times its own length from the end of the postical vein.

♀. Face and frons almost of equal width all the way down, only slightly narrowing towards the mouth, face dull green with a faint whitish tomentum, arista still more evidently dorsal. One specimen has the hind tibiæ and tarsi brownish.

As each new species is discovered and described, the boundaries between the genera *Diaphorus* and *Chrysotus* seem to grow fainter. *Diaphorus melancholicus*, Lw., described in 1869, is the nearest ally to *D. dorsalis*, but seems to have the antennæ with a smaller roundish third joint, and a more blackish-green abdomen, besides being described as one line long, while *D. dorsalis* is distinctly less than that. The only characters I can detect separating *D. dorsalis* from the genus *Chrysotus* are the elongated pulvilli of the male, and the more distinct bristles on the hypopygium; I see no character to separate the females.

One ♂ and two ♀ at Woking, on August 1st, 1875, near the banks of the canal.

(To be continued).

ON A NEW GENUS AND SPECIES OF THE FAMILY STAPHYLINIDÆ.

BY D. SHARP, M.B.

The enormous mass of minute *Staphylinidæ*, named collectively *Aleocharini*, consists of many hundred described (and probably nearly as many thousand undescribed) species, and forms one of the most specialized portions of the *Staphylinidæ*; by this, I mean a portion in which the points of structure distinctive of the family are most developed. The group of the *Staphylinidæ* called *Tachyporini* has been generally placed next to the *Aleocharini*; it is, however, much less developed or specialised than the *Aleocharini*, and its place is likely still to give rise to much discussion. I am myself disposed to guess that the *Aleocharini* are likely to prove a group which must be subjected to much decomposition or analysis before it can be properly dealt with, and that some portions of it will be found to be directly connected with (or descended from) the *Oxytelini*, and others from the *Tachyporini*. The insect I here describe is of considerable importance as throwing some light on this point.

The most decided characters by which the *Aleocharini* and *Tachyporini* are distinguished, are the structure of the elytra, and the insertion of the antennæ. In the *Tachyporini*, the elytra are furnished with a well marked and abruptly distinguished pleural portion; while in the *Aleocharini* this pleural portion is not to be found. The stages of its disappearance can be, it seems to me, clearly traced, for we have only to examine a selected series of *Tachyporini* to find this pleura becoming more and more inflexed, till, in *Hypocyptus* and *Vatesus*, we find it entirely and closely applied to the inner face of the body of the elytron; it has, in fact, become completely doubled in or folded down. M. Pandellé has already pointed out that this is the metamorphosis by which the difference in the elytron of *Hypocyptus* from other *Tachyporini* may be understood, and the *Vatesus latitans* seems to demonstrate this completely; for, while in *Hypocyptus* the outer line or boundary of the pleura has entirely disappeared, and only the inner one can be detected, in *Vatesus*, on the other hand, both lines exist. The disappearance of the inner line (which is the only one existing in *Hypocyptus*) would completely transform such an elytron into that of the *Aleocharini*.

As regards the second point by which the *Aleocharini* and *Tachyporini* are distinguished, viz., the insertion of the antennæ, *Vatesus* seems to occupy a peculiarly interesting position between the two

groups: in it, the head has undergone a peculiar change, by which the front half is bent down at right angles to the posterior half; now, if this bent-down front portion be supposed to be bent up so as to restore it to its natural plane, it will be seen that the point of insertion of the antennæ is that of the *Aleocharini*, or, perhaps I should rather say, of an ultra Aleocharineous Aleocharinid, for the point of insertion would then be correctly described as at the inner margin of the eye, but rather nearer to the back than to the front of the eye: if, on the other hand, we suppose this peculiar deflexed front portion of the head of *Vatesus*, together with the corresponding portion of the eye, to be greatly reduced in size, it is at once seen that the form of the head and the insertion of the antennæ would be exactly that of the ordinary *Tachyporini*.

I consider, then, that the *Vatesus latitans* here described cannot be correctly classed with either the *Aleocharini* or *Tachyporini*, but should be considered apart as a connecting link between the two. I may remark also that this insect appears to have some points of relation with certain peculiar *Quediini*; but this I have not fully investigated, and only mention it as rendering still more probable the hypothesis that *Vatesus* is in many respects a very primitive form or synthetic type.

On one other point, I will venture to offer a suggestion. When this insect is carefully examined, it is seen that its points of structure are such as to unfit it for much activity, but to afford it great protection in complete quiescence; thus the segments of the hind body are completely retractile, and when so retracted, leave scarcely any portion of this part exposed, except the ventral plate of the basal segment, and this is protected by peculiar rigid spines. The extremely small head is capable of being completely inflexed, and the sensitive front parts of it are then completely protected by the huge front coxæ; and I believe that the peculiar change of form of the front parts of the upper surface of the head will, on careful examination, be found to be merely a perfecting of this applicability. The legs are so formed that their parts are beautifully adapted to one another when flexed or contracted, the articulations being then completely protected, while the large flat femora completely cover and protect the breast. We can imagine, then, a small parasite seeking in vain to find a chink by which to gain access to the soft and nutritious parts of our *Vatesus*. Now, I am strongly inclined to consider that in a great many *Coleoptera*, and probably in other insects, it will be found that a vast number of

points of structure are directly related to the preservation of the creature from small parasites. We have here an extensive field in which "natural selection" may be supposed to operate in the most direct manner. Finally, I would add, that I think it will very likely be found that insects which are greatly modified for a very protected or quiescent life of this sort, are remarkably often primitive forms. The most beautiful instance of complete protection of the sort with which I am myself acquainted, is to be found in the "kugelförmige," or rolling-up, *Trogidæ*.

VATESUS, *n. gen.*

Head extremely small in proportion to the prothorax, its vertical part forming a plane at right angles to the plane of the clypeal portion, so that when the head is extended, the vertical plane is horizontal and the clypeal one perpendicular; this perpendicular portion is to a great extent occupied by two large depressions in which are the cavities for the insertion of the antennæ; the space separating these two large cavities is somewhat prolonged in front, is transversely convex, and to its front margin is attached the large labrum: the eyes are very peculiar in form; when looked at from the front, each eye appears as a perpendicular external wall to the large antennal cavity, while, seen from the side, each eye presents a considerable superficies looking outwards; when looked at from the front, it is seen that the round articular cavity for the insertion of the antenna is nearer to the top than to the inferior boundary of the perpendicular portion of the eye.

Maxillary palpi elongate, first joint short, second curved and elongate, third slightly longer than second and scarcely more slender than it, fourth elongate and slender, but considerable shorter than third, and scarcely half so stout as it, quite acuminate. Pronotum forming a very convex surface, the hind margin of which is sinuate on each side, the hind angles greatly rounded, the sides finely margined, curved, and extremely narrowed towards the front; the front margin is very small in proportion to the others, and forms an arch for the accommodation of the head, the front angles being extremely obtuse.

Looking at the under-surface, the sides of the pronotum extend greatly beyond the prosternum, so that the front legs, when contracted, are entirely concealed; the prosternum is but a narrow band, placed quite in front of the coxæ, and leaving them completely exposed; the coxæ are very large and inflated, and the head can be deflexed, and applied closely to the small portion of the thorax that is in front of and between them: the front femora are short, broad, and plate-like, their lower edge being deeply channelled for the reception of the tibiæ, the channel extending to the point of the trochanter; the front tibiæ are short, compressed, and are rather attenuate towards the apex, their hinder face is armed with stout spines, and their apex possesses several long spines, which greatly conceal the upper face of the front tarsi; these are five-jointed, and in the male are rather broad, but the basal joints can scarcely be said to be dilated, as they are not much broader than the terminal joint, they are clothed beneath with long hairs, the fifth joint is broad and longer than the two preceding ones together. The mesosternum forms a transverse band,

which sends forward in the middle an elongate, extremely slender process between the middle coxæ to meet the metasternum. Middle coxæ very large. Metasternum greatly reduced, not so large as the hind coxæ. Hind coxæ very large (similar in structure to what obtains in the convex South American species of *Coproporus*, e. g., *C. obesus*, Sharp). Middle femora broad and laminar, their hinder edge deeply channelled for the reception of the tibiæ: these are stout, rather attenuate towards the extremity, strongly spinulose; the tarsi are broad, and appear like a continuation of the tibiæ, the basal joint is particularly large, and is as long as the three following together, the fifth joint is stout and flat. Hind femora, tibiæ, and tarsi, much resembling the middle ones, but more slender and rather more elongate. Elytra (seen from above) very arched transversely, the humeral angles greatly rounded, the upper superficies bounded by a fine line which extends from the hinder outer angle to near the large scutellum; the hinder external angle is a little produced, so as to be acute, their suture is fine and accurately fitted, and is without stria. Seen from beneath, the external portions of the elytra project greatly as a broad free border beyond the sternum, this border is marked off by a very distinct raised line, which exists on the inner face of the elytron, and accurately adapts itself to the side margins of the sternum. Hind-body broad and short, much attenuated towards the extremity, the sides distinctly margined, the segments capable of being almost entirely retracted within one another: its structure very similar to that of the convex *Copropori*, this being the case also with the œdeagus and its sheathing segment. The antennæ are not described, because only the two basal joints exist, these are rather short, the basal joint being rather thick in proportion to its length.

VATESUS LATITANS, n. sp.

Transversim perconvexus, capite thorace elytrisque nigris, nitidis, fere lavigatis; abdomine piceo, fere opaco, crebre punctato, densius subtiliter pubescente.

Long. corp. extens. 8½ mm.

Head about 1 mm. broad, black, impunctate. Thorax about 3½ mm., broad, and about 2 in length, with a few very indistinct punctures scattered over its surface. Scutellum impunctate. Elytra about as long as the thorax, impunctate, moderately shining, their hind margin pitchy. Hind-body pitchy, with the hind-margins of the segments and the apex paler; the segments above finely, very evenly and rather closely punctured, and clothed with a very short and even yellow pubescence: the under surface similar to the upper, except that it has the basal segment coarsely punctured, and its pubescence is developed into coarse spines. Legs pitchy. In the male, the dorsal plate of the 7th segment of the hind body ends in four obtuse teeth, the ventral plate has a broad and rather deep sub-angular notch at the apex; the hind margin of the ventral plate of the preceding segment is a little trisinate, and it is slightly depressed along the middle, and its pubescence arranged so as to give it an obsolete grooved appearance.

Female unknown.

Parana, South America; a single mutilated male specimen.

Thornhill, Dumfries:

November 23rd, 1875.

BRITISH HEMIPTERA-HOMOPTERA—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

TYPHLOCYBIDÆ.

DICRANONEURA PYGMEA, *n. sp.*

♂. Orange-yellow. *Head* short, obtusely angular, sides rounded. *Eyes* black, not prominent. *Pronotum* broad, about a fifth longer than the head, anteriorly much and roundly produced, posterior margin scarcely emarginate. *Scutellum* with a distinct black spot at the apex. *Elytra*—*corium* and *clavus* inwardly paler orange than on their outer sides, nerves deeper orange, the inner margin of the *clavus* with a fuscous line: *membrane* with a slightly fuscous tinge, nerves pale orange; 1st cell short, angular, slightly prolonged posteriorly beyond the base of the 2nd and 3rd, which are of sub-equal length; 3rd cell (between the 2nd and 3rd straight nerves) narrower than the others; 4th cell with its oblique base extending further back than either of the others. *Wings* diaphanous, slightly infuscated, iridescent; longitudinal nerves infuscated. *Legs* orange; claws of the tarsi infuscated. *Abdomen* black above; *genitalia* orange.

Length, $1\frac{1}{2}$ line.

A single male taken casually at Darenth Wood, on the 7th October last.

In size, this comes nearest to *Notus minimus*, J. Sahlb. (which I know only by description), yet it appeared to differ so much from this and all other species with which I am acquainted, that I thought it best before describing it to submit it to Dr. Sahlberg, who thus writes concerning it:—"A species unknown to me. It is to be distinguished from *N. minimus* by the form of the head, the eyes less prominent posteriorly, the broader pronotum with its posterior margin scarcely emarginate, and the form of the genitalia, as well as by the different colour."

TYPHLOCYBA CRATEGI, *n. sp.*

Pale whitish-yellow. *Head* obtusely pointed, the sides rounded. *Pronotum* scarcely one-fourth longer than the head, posterior margin slightly concave. *Scutellum*, like the head and pronotum, spotless. *Elytra* shining, pale yellowish with a greenish tinge, the lower margin of the *clavus* throughout narrowly and regularly pale fuscous-brown; *membrane* pale fuscous, with somewhat indistinct yellowish nerves; at the base of the cells on the *corium* a transverse row of more or less distinct fuscous spots. *Wings* diaphanous, iridescent, nerves pale. *Legs* pale, claws of the tarsi fuscous. *Abdomen* whitish-yellow.

Length, $1\frac{1}{2}$ line.

Allied to *T. gratiosa*, Boh., but smaller, elytra yellower, narrower, the fuscous stripe on the outer margin of the *clavus* not so broad and of uniform width, and the spots on the *corium* next the *membrane* rounder and less distinct. The species is unknown to Dr. J. Sahlberg and M. Lethierry.

Taken on whitethorn (*Cratægus oxyacantha*) at Lee, Dartford, Addington Hills, from the end of June to the end of October. I once found it on apple trees.

TYPHLOCYBA DEBILIS, *n. sp.*

♀. Pale yellowish-white. *Head* very obtusely produced, sides rounded, frons with two large, round, black spots. *Pronotum* with a small black dot in front close to the head, posterior margin scarcely concave. *Scutellum* concolorous with the head and pronotum, the apex with a conspicuous shining black spot. *Elytra* pale yellowish-white, with a delicate greenish flush, gradually deeper from the middle of the corium to the outer margin of the clavus; *membrane* pale fuscous, with indistinct pale yellowish nerves, generally the apex, and anterior and inferior margins each, with a dark fuscous, inwardly directed, elongated spot; on the corium, at the base of the apical cells, a transverse row of fuscous spots. *Wings* diaphanous, longitudinal nerves yellowish, fuscous at the extremity. *Legs* pale, claws of the tarsi fuscous. *Abdomen* above black, the margins of the segments white, the last abdominal segment posteriorly broadly white, and roundly produced over the long genital segment, which is whitish at the apex. Length, $1\frac{1}{2}$ line.

Close to *T. tenerrima*, H-Schf., but distinct by the black spots on the head, pronotum, and scutellum, the absence of distinct vittæ on the elytra, the fuscous membrane, &c.

The male is unknown to me. I took three females at the Addington Hills on 26th October last, beaten out of blackthorn growing among other bushes.

EUPTERYX TENELLUS.

Cicada tenella, Fall., Act. Holm., 43 (1806); Hem. Succ., ii, 52, 44 (1826). *Typhlocyba tenella*, H.-Schf., F. G., 164, 16; Flor, Rhyn. Livl., ii, 421, 27 (1861); Kirschb., Cicad., 191, 32 (1868). *Typhlocyba pulchella*, H.-Schf., F. G., 124, 6. *Eupteryx tenella*, J. Sahlb., Not. Fenn., xii, 192, 3.

Pale yellow. *Head* broadly rounded anteriorly, two large rounded black spots on the frons, and one (transverse) on the posterior margin; *face* convex, with two longitudinal blackish vittæ. *Pronotum* somewhat longer than the head, posterior margin straight; the middle and posterior half of the disc (except the extreme margin) fuscous-brown. *Scutellum* large, with a sharp transverse depression beyond the middle; the basal angles broadly black. *Elytra* pale greenish-yellow, with the scutellar margin, a broad stripe down the claval suture, and two narrower and shorter stripes beyond, dark fuscous; *membrane* infuscated, nerves darker. *Wings* hyaline, longitudinal nerves thick, fuscous. *Legs* yellowish, spines of the hinder tibiæ infuscated, apex of the last joint of all the tarsi, also the claws, fuscous. *Abdomen* black, the segments margined with yellow. Length, $1\frac{1}{2}$ line.

A very distinct species, unlike any other of the genus.

A few specimens in Dr. Power's collection, taken by him at Birdbrook, Essex, at the end of May. Sahlberg says it is found on *Urtica dioica* in South Finland.

Lee: November 15th, 1875.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

Description of a new British species of the Family DELPHACIDÆ.

LIBURNIA PALUDOSA.

Delphax paludosa, Flor, Rhyn. Livl., ii, 82, 27.

Undeveloped form, ♂.

Pale yellowish or brownish-yellow. *Antennæ*: apex of the 1st joint and base of the 2nd narrowly black. *Elytra* as long as the abdomen, slightly narrowed towards the long rounded apex.

Head brownish, inclined to fuscous-brown. *Crown* with a somewhat fuscous shade in front; basal foveæ distinct. *Face*: keels moderately acute and prominent. *Antennæ* brownish-yellow; 2nd joint at least one and a half times as long as the 1st; 1st joint at the apex, and 2nd at the base, narrowly black.

Thorax—*pronotum* yellow, with a distinct puncture on each side of the centre; posterior margin concave or somewhat angulate. *Scutellum* yellow. *Elytra* pale yellowish or brownish-yellow; nerves somewhat thickly and finely punctured. *Corium* slightly tapering from the apex of the clavus to the long rounded apex. *Sternum* yellow, or with a slight fuscous shade. *Legs* yellow; 1st and 2nd pairs with a brownish or fuscous shade. *Tarsi*: 1st and 2nd pairs black, or 1st and 2nd joints piceous and 3rd black; 3rd pair, 3rd joint black.

Abdomen: above, yellowish; beneath, pitchy-brown; genital processes brown, towards the top reddish; upper portion, when viewed from beneath, somewhat square, with the upper margin concave. Length, 1 line.

By the shape of its genital processes, suggestive of *L. neglecta*, but in that species the upper portion is much longer, entirely brown, and attached to a shorter base. In *L. paludosa*, when viewed from beneath, they may be roughly likened to two flags blowing towards each other. The different coloring of the antennæ and shape of the elytra are also excellent diagnostic characters.

Two ♂ examples have been captured by Dr. Power at Merton and Wimbledon in June and July.

Lee: 29th November, 1875.

Note on Mr. Scudder's "Remarks on the old genus Callidryas."—In the Proceedings of the Boston Society of Natural History, vol. xvii, part ii, p. 206, is a short paper by Mr. Scudder reviewing the N. American species included in my Monograph, and adding the description of a "new species?" which he does me the honour to name after me.

With Mr. Scudder's usual anxiety to sub-divide genera, he begins by splitting off *C. Pyranthe*, Linn., as a distinct genus from *Catopsilia*, and type of *Murtia*, Hübner. I can only say that the characters which he gives to distinguish it from *Catopsilia* do not hold good in a series of specimens; it is easy to pick out an example of a species with short antennæ, and compare it with an example of another species having long antennæ, but the point to consider is whether this character will stand when we examine forty or fifty of each species.

The male of *P. Agarithe* is often larger, and sometimes smaller, than it is represented in my figure; it does not differ so much in the mealy border above, as in the central streak below. As I have not given a short comparative diagnosis of the four orange males in my Monograph, I append them here:—

1. Wings below with zig-zag discal markings.

1a. Secondaries with silver spots below.

1aa. Primaries above with black expanded spots at terminations of nervures, generally uniting into a continuous marginal border... *Phæbis Hersilia*.

1ab. Primaries above with small black dots at terminations of nervures.

Phæbis rorata.

1b. Secondaries without silver spots below..... *Phæbis Argante*.

2. Wings below with discal markings replaced by a straight oblique line or streak: otherwise as in the preceding species..... *Phæbis Agarithe*.

These characters will always distinguish the males of the above species: the females are as usual quite unlike each other, and therefore need no such tabular diagnoses to distinguish them.

The figure of *C. Eubule*, ♂, was taken from a very good example. I had no need to take my drawings from rubbed specimens, as suggested by Mr. Scudder, since I had the run of all the fine collections in this country, and had about 500 *Callidryades* in my house at one time.

The *C. Cypris* of Edwards' List, and quoted by Mr. Scudder, will probably turn out to be *Metura virgo*, mihi, ♂.

Aphrissa Butleri, Scudder, is the *Callidryas Boisduvali* of Felder, between which and *C. Statira* Mr. Salvin has a perfectly transitional series, as mentioned in my Monograph Lep. Exot., p. 143.—A. G. BUTLER, British Museum: 19th November, 1875.

Note on Lycæna Galathea, Blanch.—In 1865, Mr. Moore described and figured in Proc. Zool Soc. an Indian species of *Lycæna* under the name of *Pol. Nycula*. This he now believes to be identical with *Lyc. Galathea*, Blanch. (1844). In this opinion I concur. I believe, also, that *Lyc. metallica*, Feld. (1865) is only a synonym of *L. Galathea*, in spite of the differences on the under-side of the ♂, as figured by Felder. Felder does not figure the under-side of the ♀, but his description applies accurately to the under-side of *L. Nycula*, ♂, so that I think it probable

that his *L. metallica* ♂ was described from an example of *L. Galathea*, in which the pupils of the spots on the under-side of fore-wing were obsolete. This is the more probable, as in the allied European species, *Lyc. Pheretes*, the same peculiarity occurs: the pupils being sometimes very distinctly marked, and in other cases almost invisible. Felder remarks on the relationship of this species to *Lyc. Cyllarus*. I think it closer to the *Pheretes* group, though certainly it has some affinity to *Lyc. Cyllarus* and *L. melanops*. The synonymy (if I am correct) should now stand as follows:—*Lyc. Galathea*, Blanch. (1844); *Lyc. Nycula*, Moore (1865); *Lyc. metallica*, Feld. (1865).—RICHARD P. MURRAY, Beckenham: December, 1875.

Symphædra Dirtea attracted by bait.—My old Penang friend, J. P. Stewart, Esq., having lately paid me a visit, we soon found ourselves talking over our old entomological days in Malacca. I was thus enabled to recall and verify a fact that had quite slipped from my mind, viz.:—that *Symphædra Dirtea* can be attracted by a bait. Slices of cut pine-apple placed along a road that ran by the jungle, were generally sure, in a short time, at the proper season, to be visited by a good supply of both males and females. The sexes, as is well known, are strikingly dissimilar, but the collectors there, without any special knowledge of *Lepidoptera*, had come to the right conclusion owing to both forms being generally found together. Old and fallen fruits of most kinds were attractive, but sliced pine-apple was mostly used as bait. I had been told this when in Province Wellesley, Penang, but having never tried it, I am glad to have the authority of my friend Stewart, who has been very successful in catching this butterfly by the above method.—W. L. DISTANT, Streatham Cottage, West Dulwich.

Note on sugaring.—Some entomologists assert that it is useless to sugar when ivy is in bloom. Now, I do not question the fact of moths being attracted by the ivy blossom, but I do question the uselessness of sugaring near ivy when it is in blossom. I had an opportunity of proving this about the end of September, when that plant was flowering.

The place where I sugared was in Berwickshire, near the coast. I first cut about a dozen sticks, four or five feet long, and, by means of grass, tied various plants on to the top of them. These sticks I placed in the ground in a long walk, with shrubs on both sides, and well protected from northerly and easterly winds. A plantation lay to the south of the walk, and a wall bordered this plantation on the westward, while, on the top of this wall, forty yards from where the sticks were placed, was the ivy. It overhung both sides, and covered a large portion of the wall.

In the day-time wasps, drones, blue-bottle flies, &c., were in crowds on it, while, in nights previous to my sugaring, moths were there in abundance. I used the common sugaring mixture. This I placed on the plants. The night was peculiarly favourable for the trial, being very dark, while a light wind blew the smell of the sugar down in the direction of the ivy. About half-past seven I came out and examined all the plants. I found it a complete success. I examined the ivy next, and found only five or six moths. It was the same at 9 o'clock. The moths at the sugar were mostly inebriated. Specimens of *Xyline ferruginea* were very numerous; *Cerastis vaccinii* and *Scopelosoma satellitia* were also numerous. I got five specimens of *Calocampa exoleta*, and two of *Agrotis suffusa*. *Gonoptera libatrix* was

also there, for I got two specimens, one of which had apparently newly come out. *Miselia oxyacanthæ*, *Miana literosa*, *Triphæna pronuba*, and one or two other species, were there too. In point of number, I have never beheld such an assemblage of moths. This surely shows that it is not useless to sugar near ivy when it is flowering.—W. SANDISON, 43, Govan Road, Glasgow.

Query as to breeding Agrotis agathina.—The difficulty of rearing this moth from the larva has, I believe, been solved and published during my recent absence abroad. I am very anxious to see the plan recommended, but cannot learn in which magazine the publication took place. May I ask for this information from the readers of this Journal?—G. NORMAN, Cluny Hill, Forbes.

Xysmatodoma melanella and Solenobia pomonæ.—I am much pleased that attention has again been directed to the problem of the life-history of *Solenobia pomonæ* and *X. melanella*. Mr. Boyd, before publishing his note on the subject, kindly forwarded it to me; and although I fear I am not quite convinced that my view of the subject is wrong, still I thank him for the kind and courteous way he has approached the subject.

I suppose I have had more opportunities of studying the history of *pomonæ* than most entomologists, as I have collected, since I first found the species, many thousands of the cases in the hope of discovering the male form. From the time of my first finding the species until the year when my notes appeared in the Magazine (1869), I had been in communication, respecting these cases, with my esteemed friend, the late Mr. Doubleday. I had sent him, at different times, hundreds of the cases; and it was acting under his advice, and after I had submitted my notes to him, that they appeared in the Magazine, he thinking, with myself, that, even supposing my view of the subject to be incorrect, still a sufficient amount of attention might be brought to bear on the life-history of *pomonæ* to solve the puzzle of its singular economy.

I will now briefly state my experience of *pomonæ* and *melanella*, so that the present position of the subject may be clearly defined; and I hope the matter, deeply interesting as it is, will not again be lost sight of until solved finally beyond doubt: and should the solution prove adverse to the view I propounded, still my object in bringing it forward will be accomplished.

The first year I found the cases was, I think, either 1855 or 1856; but, upon submitting them to an entomological friend, he thought they would prove dipterous, an opinion, I believe, shared at the time by Mr. Stainton. I, however, collected a lot of the cases; but, as I apparently bred neither flies nor moths, I threw them away. A closer examination of the larva the next season proved them to be lepidopterous, and I collected several thousand cases, a large proportion of which I divided among my correspondents, as it was evident the species, when bred, would prove a new one to Britain. I was very successful this time in rearing specimens, but all were of the apterous form; and the singularly long ovipositor for a lepidopterous insect at once showed its distinctness from any other known species. Several of my entomological friends, to whom I sent cases, were also successful in rearing them, but with like results to myself, only apterous forms appearing.

We thought, perhaps, the next year we should succeed in breeding the male

form, and again I collected and sent round an enormous number of cases (the cases this season being in wonderful profusion, hundreds of specimens might have been taken on a space of a few inches square); but again, to our great disgust, nothing but the apterous form could be bred. This went on till 1869; and my correspondents, one after the other, gave up the problem. I may add here that among the large number of cases I had bred myself, or had sent to correspondents, not a single example of *melanella* had ever occurred.

In 1869 the change came: nearly all the cases from the trees, from which I had been in the habit of breeding *pomonæ*, now produced *melanella*, the proportion of winged forms to apterous being, I think, about ten to two. I at once joyfully wrote off to Mr. Doubleday that I had at last bred the male form of *pomonæ*, but added that it was strangely like *melanella* as described in Mr. Stainton's Manual. Mr. Doubleday regretted he had no *melanella* he could send me for comparison, but he lent me a German work in which *melanella* and cases were figured, and I found my surmise was correct, and that my winged forms were *melanella*.

In 1870, I again collected a lot of cases, and the proportion of 1869 was reversed; and I bred a very large proportion of apterous forms, the winged species being few and far between. In 1871, my cases produced only apterous forms, not a single winged example appearing. In 1872, from several causes, I did not collect any cases.

Last year my friend, Mr. W. H. Grigg, and myself again collected a large number of cases, many of the fully-grown ones having the truncated appearance that Mr. Boyd describes as peculiar to *melanella*. We both bred the apterous form freely, and nothing else. Thus the matter stands. Mr. Boyd has met with both species, if species they are, feeding together; and it will be interesting to learn if the cases are of equal distribution everywhere. The cases of both forms I have found on oak, pear, apple, plum, cherry, ash, beech, elm, and poplar trees: they occur at from two to six feet from the ground, principally; and after the eye becomes accustomed to them, are not hard to find. If they occur here during the coming spring, in anything like their usual abundance, I shall be most happy to send cases to any entomologists who care to join Mr. Boyd and myself in endeavouring to settle the matter conclusively.

In rearing both forms in 1869 and 70, I found my experience was exactly as Mr. Boyd describes, the apterous form leaving the pupa-skin inside the case, while *melanella*, or, I should have said, the winged form, left the puparium emerging more or less from the case, sometimes bringing it altogether out; but when we consider the activity of the winged form on the one hand, even when emerging from the pupa, and the sluggish and almost legless apterous form, this difficulty disappears in a large measure.

With respect to the editorial note attached to Mr. Boyd's paper, I may add that pooh-poohing a subject will neither prove or disprove it; and I think that the editors of the Magazine will hardly risk asserting that *pomonæ* has power to reproduce itself continuously without the male form appearing.—GEORGE HARDING, Stapleton, near Bristol: December 9th, 1875.

Description of the larva of Botys terrealis.—On the 13th September last I received a fine full-grown larva of this species from Mr. J. B. Hodgkinson of Preston, who had collected about half a score at Grange two days previously.

The larva is very lively, about an inch in length, and of tolerable bulk in proportion; head globular and shining, small, about the same width as the 2nd, but much narrower than the succeeding segments; body cylindrical and very markedly attenuated towards the extremities; the segmental divisions are rather deeply cut; the somewhat glossy and semi-translucent skin is clothed with a few scattered short hairs; the usual dots distinct.

Ground colour, rich reddish-pink; the head and anal segment pale yellowish-brown, mandibles and a few spots on the lobes darker brown; the most conspicuous of its markings is the broad pulsating vessel which forms the medio-dorsal stripe: it is of a considerably darker tint than the general ground colour: there are no other particular markings, but the sides are variegated a little with a darker shade of the ground colour. Ventral surface a little paler, and each pro-leg tipped on the outside with a black dot.

Freyer describes the larva as "pale green, with several slender, rather darker, lateral lines." This must have been taken from a very different variety to mine.

Mr. Hodgkinson collected the larvæ from golden rod (*Solidago virgaurea*), and in his note accompanying the one sent me, says, "the plants they are on are denuded of flowers, as a rule, and generally shabby." He could find no larvæ on the plants which were in full bloom.—GEO. T. PORRITT, Huddersfield: December 2nd, 1875.

On the larva of Hydrocampa nymphæalis and its habits.—I am glad to express my thanks to Mr. Henry Laver, of Colchester, for the welcome gift, on the 5th July, 1875, of two aquatic larvæ which proved to be of this species, and also for a supply of *Potamogeton natans*, the plant on which he had found them feeding; and I venture to suppose that some account of my observations may perhaps be acceptable.

These larvæ—differing much in size, but, as presently appeared, both nearly full-fed, the difference in size being a sexual distinction, the ♀ larger than the ♂—were inhabiting cases floating on, or near the surface of, the water; the length of the largest case was one and a half inches by three-quarters in breadth, the smaller case not more than three-quarters inch long by three-eighths broad; both of a flattish and somewhat oval general figure, formed with two pieces of the *Potamogeton* leaf placed one upon the other, and fastened together with silk at the sides; the component pieces not cut quite alike, for at one part the upper piece projected a little beyond the lower, and at another part the reverse of this occurred; these irregularities of outline were most noticeable in the smaller case; the ends of both were free, though appearing to fit close; the upper piece showing a slight convexity of surface, the lower piece nearly flat, possessing much elasticity at the ends; the edges of the case were always a little submerged, and only the central convex part of the upper surface would appear above the water while it was floating at the top; when entirely submerged, with the occupant hidden within, it appeared quite flat, like a mere fragment of leaf, due to an optical effect of the water.

Thinking the larvæ appeared mature, I lost no time, on the day they arrived, in securing figures of them. I pushed the largest out of its case into a saucer of water; it soon ascended the side of the saucer, above the water, so far that only its hinder segment remained immersed, and in this position, for several minutes, it kept still, affording me the opportunity of a good examination. I found it to be seven-eighths inch in length, stout in proportion, thickest in the middle of the body, and tapering

towards each end rather suddenly; the head rather small; the segments decreasing in thickness from the seventh, and again decreasing from the tenth to the anal tip, all well defined by deep, yet close, divisions; the third and fourth segments with three sub-dividing wrinkles on the back, the other segments with only one deep wrinkle, the sides dimpled; the anterior legs tolerably well developed, the ventral and anal legs mere fleshy swellings with a flat process at the extremity fringed with fine hooks. The colour of the head light olive-brown, the lobes and mouth darker brown; a pale olive shining plate on the second segment margined both in front and behind by a fine black line, and within it, after an interspace of the pale ground, there is, in the middle, a transverse fusiform brownish-black mark dorsally divided by a thin pale line; the rest of the body above light olive brown with a darker dorsal stripe, and fainter indications of a sub-dorsal stripe less dark; the body beneath much paler, of a light buff colour very faintly tinged with olive; no abrupt change of colour to mark the division of the back from the belly, as the tints of both melt slightly together along the spiracles, which are very small, roundish oval, level with the skin, of the ground colour delicately outlined with reddish-brown; the hooks of the feet dark brown; the whole skin soft and velvety, appearing darker in the depths of the segmental divisions, and paler at the folds.

After remaining quiet about ten minutes, whilst I was making my observations, the larva began by degrees to recover from its fright, and, regaining confidence, turned back into the water, sinking in it to the bottom, about an inch in depth; here it stretched itself out to the length of apparently an inch and a half,* looking very thin and silvery, reminding me of a preserved larva unnaturally attenuated; in this way, by its motions, it appeared to be searching for its case, or for the food-plant; and when presently its empty case was placed on the water near it, and it contrived to touch the case with its head, it seemed baffled at first in its attempts to get into it, but in a few minutes, while struggling with the buoyant structure, it arrived with it at the side of the saucer, up which it crawled, and from thence on to the top of the case, appearing perfectly dry, and with its previous proportions and shape resumed; and, on coming to one end of the case, it tucked down its head, and in a couple of seconds had entered within, and was out of sight. I then examined the smaller larva, and found it varied only in being a little deeper coloured. After this I left them quiet, and they seemed very shy for a couple of days, and lay under the lowest broad leaf of the floating *Potamogeton*; but while thus hidden themselves from view, their situation could be made out, easily enough, by the large discoloured curved blotches they caused on the leaf by eating away the lower cuticle, and occasionally making a small hole quite through the upper surface; this leaf was nearly consumed by the fifth day, by which time their shyness had in a measure worn off, and they were then eating at the edges of another leaf, their cases in view alongside, or lying above the leaf: on the seventh day, I noticed the largest larva had drawn the edge of a leaf a little way within the opening of its case, and was then eating without at all exposing itself: its companion at this time was lying hidden in its case at the bottom of the water for several hours, but it came up again and fed at intervals, often protruding its front segments as it crawled along the stems and leaves of the plant; the largest larva also at times protruded as many as seven segments downwards, as though exploring the depth of the water, but was generally

* Probably an optical effect of water.

the most intent on its food ; sometimes, while reposing within its case, it would lie on the upper surface of a leaf, in which position it was not readily detected, the assimilation being so perfect ; at other times, like its companion, it would be floating concealed, its case being just in contact with the edge of a leaf or stem ; indeed, I found I could not isolate either of them at such times in the clear space of water between the leaves, for whenever I placed one there, as lightly as possible, it seemed drawn, though gently, yet with an attraction irresistible, towards some part of the plant ; and if one end of the case first touched it, the other end swung round till the side of the case was in contact, when it would be still.

Finding the water much sullied by the frass, I thought it necessary to have it changed every second day, and each time this operation occurred, the larvæ and their food were transferred, for a few minutes, from the large china bowl in which they were kept to a saucer of water, and while here it happened, on three occasions, that pellets of frass were ejected, with some force, out of the water, to the distance of eight inches beyond the saucer, on the table : its propulsion seemed frequently to be in an upward direction, as I constantly noticed, latterly, a large proportion of frass adhering to the side of the bowl two inches or more above the water.

After feeding well for ten days, during which time all the five leaves of the plant sent with them had become much ravaged and reduced to fragments, to my great satisfaction, the larvæ appeared on the 16th of the month to have ceased feeding ; and towards evening I was greatly surprised to see the smaller larva had abandoned its case, and was crawling naked over the remains of its food-plant, its colour a little faded ; on the morning of the 17th I found it half out of the water, on the side of the bowl ; in the afternoon I saw, with much perplexity, the larger larva had also left its case, and was crawling about through the water in a forlorn condition, and much paler than before. I now had great anxiety for their ultimate fate, as their behaviour did not seem to agree with their alleged habit of pupating within their cases, which were still as fresh-looking as at first ; so, with a faint hope of their spinning up amongst the *débris* of their food, I left them for the night. The next morning, seeing both larvæ out of the water, and looking very miserable, it struck me they were seeking some other kind of plant to make up in, and I supplied some *Callitriche verna* and *Helosciadium nodiflorum*, but on neither of these plants would they stay, and I then tried some pieces of *Sparganium ramosum*, on which they crawled about and lingered some time, which induced me to obtain several longer pieces, and to stand them upright, with the lower ends in water, within a glass globe, and, after placing the larvæ there, to tie over a piece of muslin at the top, lest they might wander away ; this arrangement proved successful ; the burr-reeds were now in position as they would be naturally growing out of water, and I had the great pleasure and relief of seeing, within a minute, the larger larva creep up about an inch or so above the water level, between two pieces of the *Sparganium*, and immediately begin to spin them together ; the smaller larva also soon found out two other pieces suitable, and begun to spin them together in the same manner, and at the same distance above the water ; and I watched their proceedings as long as their heads could be seen in motion, sometimes upwards from side to side, and then below in the same way, until the surfaces were closed up entirely. I let them remain until a week had elapsed, when, seeing the *Sparganium* begin to look bad at the bottom, I cut the pieces shorter, and stood them on some dry moss in a pot covered with gauze.

Both moths were out on August 7th,—a male and female: on examining the puparia, I found the tissues of the *Sparganium* had shrunk so much, that the oval form of the enclosed cocoons stood out in rounded relief on the outer surfaces, while within, the entire space spun over with silk was about one and a quarter inches long by three-eighths wide; and in the middle of this was the cavity of the cocoon five-eighths long by quarter inch wide, smoothly lined with the same greyish-white silk as the rest; that which was below the cavity was more thickly spun than that above it, but both united the flat surfaces close together. The pupa skin remained with the head uppermost, and the shrivelled-up larval skin at the lower end of the cavity; the dimensions of the pupa skin were half an inch in length by nearly three-sixteenths in diameter at the thickest part of the body across the ends of the wing-covers, the abdomen tapering from thence to the anal tip, which is bluntly rounded off without any projecting boss or spike, but having, instead, a horny wart, cleft and bilabiate—not raised above the rest of the surface—and furnished also with a few small bristles; the wing-covers long, the antennæ and leg-cases very long, projecting at their ends free from the abdomen. The colour a light warm brown on the wings and ventral surface, which, with the abdominal tip, are shining, while the thorax and back of abdomen are a little darker, and rather reddish-brown, without gloss; the spiracles projecting conspicuously large, like nipples, each on a slight eminence, were darkish-brown in colour, and shining, surrounded by a paler ring at the base, three of them being near the margin of the wings on the sixth, seventh, and eighth segments, and a smaller one, less defined, on the twelfth, but on the intermediate segments none are to be seen.

To complete my notes in chronological order, I must here add that, on August 11th, 1875, I received, from the Rev. A. Fuller, a female moth of this species, captured by him, a few days before, while it was flying about a pond at Harting. This moth was boxed and forgotten for a day or two, and when the box was opened it contained a batch of eggs, some of them still adhering to the abdomen of the insect.

The eggs were laid on the chip in clusters, with some in a string that were attached to the tail of the moth, all firmly glued together on the surfaces of the chip. The shape of the egg roundish ovate and much flattened, without gloss, and of a very deep yellow amber colour. I placed the chip with the eggs to float in water, and on the 19th August two eggs were turned black; a few days later they had all become black, but none of them hatched, and I threw them away late in September.—WILLIAM BUCKLER, Emsworth: October 22nd, 1875.

P.S.—After preparing the above notes for the press, Mr. McLachlan has most kindly given me the opportunity of reading Réaumur's wonderfully interesting "*Mémoire des Chenilles Aquatiques*," by far the greater portion of which refers to *H. nymphæalis*; and I should like to quote his observations on a few points which I had not myself the opportunity of observing.

Réaumur found, near the edges of the *Potamogeton* leaves, many little clusters of the eggs, and he seems to think the moth covers them with bits of the leaves, but as he never closely watched a moth laying its eggs (and it is hard to understand how she could effect the concealment in the way he supposes), he cannot say *how* she managed to cover them.

As soon as ever the larvæ are hatched—at the end of July, or beginning of August—he says each makes a little case for itself, and as it grows, continually makes fresh cases adapted to its increasing size.

He watched some of the larger larvæ making cases, and thus describes what he saw:—"To make itself a new case, the larva clings to the lower side of a leaf of *Potamogeton*; with its 'teeth' it pierces some portion of the leaf, and then it "bites it by degrees in following the curved line, which *must* have the outline of the "piece it wishes to detach. . . . When the larva has cut, like a piece of 'cloth, "a bit of the leaf of suitable size and figure, it has half the stuff necessary for "making itself a case; it seizes this piece with its 'teeth,' and carries it either under "another part of the same leaf, or beneath another leaf; it stops and fixes it in the "place which seems suitable. But it is to be noticed that it places it so that the "under-side of the piece is turned towards the under-side of the new leaf, in order "that the interior sides of the case are always made of the under surface of the two "pieces of leaf. And the caterpillar has determined to use them thus for a good "reason: although the leaves of *Potamogeton* are tolerably flat, they are a little "concave below; thus the under-side of the two pieces of leaf are turned towards "each other, though the edges of one are set against the edges of the other, there "remains between them a cavity for the dwelling of the larva; and that cavity "would be more difficult to contrive, if the upper surface of one piece were applied "to the under surface of the other.

"Sometimes the larva is content to attach the piece to the under-side of the "leaf, to which it has brought it, and that is at the time when it is "about to change to a pupa. Then it spins in the cavity enclosed by the two portions "of leaf a somewhat thin cocoon, but of very close tissue.

"When the larva is not ready to change, it thinks to make itself a case—a "dwelling, which it can carry about wheresoever it wishes to go. It begins by fixing "lightly, by tacking, so to say, the piece it has already cut against the new leaf; it "leaves *apparently* all round between the leaf and the piece at intervals, but tolerably "near one another, places by which it can put out its head. But it is certain that "the piece which it has attached to the leaf serves as a model to cut from it another "piece of equal size and similar shape. These two pieces together form its complete "covering; the larva finishes uniting them all round their outline, except at one "of the ends, where the two halves of the case remain simply resting against "one another.

"Whilst the larva continues to grow, its dwelling is nothing but these two pieces "of leaf fastened together, though when the time of its change draws near, it carpets "its case, making in it a cocoon of white silk."

As Réaumur speaks of finding cocoons under water containing pupæ, and as the pupæ themselves are furnished with spiracles similar to those of the larvæ, it might well be that ordinarily the pupation takes place under water, but for the time the conduct of my two larvæ puzzled me, when I saw them making their cocoons above the surface; perhaps there was not a sufficient quantity of *Potamogeton* left to satisfy their requirements in spinning themselves up. Réaumur notices—but confesses he cannot explain—the fact that the cases, though constructed entirely under water, are yet themselves quite dry and free from water—diving bells in fact—and he credits the larva with some power of expelling the water after it has completed a case: his description of colour of the larva seems to refer to its appearance under water, when it shows luminous with a brilliant silvery glitter as it advances the front segments out beyond its case, for he says "almost all its body is white, and of a white that must be (called) glittering," though he calls the head brown and the back of the first two or three segments tinted with brown.

There is such an artlessness and freshness in R'aumur's writing, that in laying down the book, one seems to have been listening to the conversation of a living brother of the net, rather than reading notes set down a century and half ago; and, from having so recently travelled over the same ground with *lemnalis* and *nymphæalis*, I can add my testimony to all that has before been given to the wonderful quickness and truth of his powers of observation.—W. B. : November 20th, 1875.

Doryphora 10-lineata.—Recently, after looking through a small case of *Coleoptera* sent from New Grenada, so long ago as 1845, I found two specimens of the so-called "Colorado Potato Beetle." I have compared them with specimens from Canada and cannot detect any difference. As it has been stated that this insect was only known up to a few years ago as living in the Rocky Mountains towards New Mexico, I think it well to put on record that it has been received from another district, so widely separated from that which was supposed to be its head-quarters, long before it attained to such disagreeable notoriety.—W. S. M. D'URBAN, Albuera, St. Leonard's, Exeter : December, 1875.

Sphinx convolvuli in Devonshire.—I have received four specimens of this Hawkmoth taken between the middle of September and beginning of October. One was from Honiton and the remaining three from this neighbourhood.—Id.

Colias Edusa in Devonshire.—This butterfly was quite numerous on the cliffs between Dawlish and Teignmouth on the 14th October last.—Id.

Migratory Locust in North Devon.—A large greenish locust, which I believe to be *Pachytylus migratorius*, was shown to me on the 25th August, having been taken a few days previously at Chulmleigh in North Devon. It was quite distinct from *Acridium peregrinum*, several specimens of which were taken in Exeter, in the autumn of 1869.—Id.

ENTOMOLOGICAL SOCIETY OF LONDON: 5th January, 1876.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair. Messrs. F. J. Horniman and D. G. Rutherford were elected Members; and Mr. F. Enock and Professor Dickson, Subscribers.

The Rev. R. P. Murray exhibited a series of *Lepidoptera* and other insects taken in the Alps during the past summer, including interesting local varieties.

Mr. S. Stevens exhibited a Dragon-fly (*Æschna mixta*; not a common species), found dead in his garden at Norwood in the middle of last November.

Mr. Champion exhibited *Aleochara hibernica*, Rye, from Slieve Donard in Ireland, *Homalota egregia*, Rye, from Caterham, and *Cryptophagus subfumatus*, Kraatz, from the London District (described in No. 140 of this Magazine).

Mr. Bates communicated "Additions to the list of the Geodephagous *Coleoptera* of Japan." Mr. Miskin, of Brisbane, communicated the description of a gigantic species of *Saturniida* from Cape York, which he termed *Attacus Hercules*. The insect expanded to nine inches, and the hind-wings were furnished with long tails; both sexes were in the Brisbane Museum. Mr. C. O. Waterhouse communicated a paper on new genera and species of *Coleoptera* belonging to various groups.

Part iv of the "Transactions" for 1875 was on the table.

MONOGRAPH UPON THE BRITISH SPECIES OF *SARCOPHAGA*, OR FLESH-FLY.

BY R. H. MEADE.

Genus *SARCOPHAGA*.

Gen. char. Body elongate. Antennæ incumbent, with the third joint rather more than twice the length of the second. Arista long, with the basal half plumose (except in some aberrant species), and the extremity bare. Eyes naked, and separated from each other in both sexes by a frontal space, which is wider in the females than in the males. Margins of facial groove smooth. Forehead with two rows of setæ in the males, and four in the females. Cheeks with a few small bristles placed in a somewhat oblique row below each eye, and varying in size in different species. Thorax large, but greater in length than width, divided into two nearly equal parts by a transverse suture, and furnished with a number of bristles, some of which are placed upon the sides in irregular lines, while others are always arranged longitudinally in two parallel rows upon the dorsum. These rows are placed upon the two outer of the three broad black stripes by which the back is marked, and always contain a definite number of bristles in each row, some in front and others behind the transverse suture, the number varying in different species, but always constant in the same. The central part of the back is free from bristles, with the exception of two placed just above the base of the large scutellum.

Abdomen elongated in the males, and oval in the females, consisting of four distinct segments, with the addition in the males of two terminal or anal joints, which are more or less tumid and involuted. The segments are armed with spines upon their posterior margins, but not upon their middle surfaces (as in the *Tachinidæ*). Two spines are always placed near together in the centre of the posterior edge of the third segment, and (in many species) two also upon the same part of the second segment.

Alulets or scales large, the lower scale being about twice as long as the upper.

Wings with the fifth longitudinal vein bent at an acute or right angle, and then extending in a curved line to the margin, which it reaches at a short distance from the extremity of the fourth longitudinal, leaving the first posterior cell partly open. The angle of the fifth vein is apparently furnished at the point of flexure with a short appendix. The fourth longitudinal vein is always armed at its base with a row of short spines or teeth, which are also met with in some species upon the second vein.

Legs furnished with numerous spines and hairs. Feet with large pulvilli and claws; the points of the latter are mostly broken off on the fore, and often on the middle, feet of the males.

The genus *Sarcophaga*, which includes a considerable number of British species (I have already determined twenty, and have no doubt that many more will be found), is composed of a series of yellowish or whitish-grey flies, striped and variegated with brown or bluish-black. The palpi and antennæ are always black; the thorax is marked with three longitudinal broad black stripes upon the dorsum, and also with some short and broken lines upon the sides; the abdomen is tessellated upon its upper surface, with a number of irregularly shaped black and white spots, forming glittering patches, which reflect the light, so that they appear of different sizes, shapes, and colours, when viewed in different directions, but are arranged more or less in longitudinal rows or stripes, which are much more distinct in some species than in others.

The majority of these flies are so much alike, that it is impossible to distinguish the separate species from each other by mere differences in colour and design; and the greater number of authors having chiefly relied upon these points, very few of the species described by them can be determined with certainty. Varieties of the same have been named as separate species, different species have been confounded together, and the same species has been described by different authors under different names. Though so much alike, however, in general appearance, many very good structural points exist by which the different species of *Sarcophaga* may be separated from one another, and named with certainty; and, before commencing the description of them, I will briefly enumerate the principal distinctive characters upon which reliance may be placed.

The *first*, which has been noticed by all authors, and by which the species may be separated into two principal divisions, is the colour of the terminal segment of the abdomen, which is always black or grey in one division, and red in the other.

The *second* important character is the presence or absence of minute spines upon the second longitudinal vein of the wings, similar to those present in all species at the base of the fourth.

The *third* is whether the hind tibiæ of the males are bearded or not with long soft and often thick hairs.

The *fourth* is whether the second abdominal segment is armed like the third with two strong central spines upon its posterior margin.

The *fifth* is the number of bristles in the two longitudinal rows

upon the dorsum of the thorax, some species having four, many only three, and a few only two, behind the transverse suture (see figs. 1, 2, 3).

Besides these important characters, there are some others of secondary value, which are often useful for the determination of nearly allied species; for instance, the presence or absence of the costal spine upon the wings, the width of the frontal space between the eyes, the size of the bristles upon the cheeks, &c.

To facilitate the description of the species, I shall first arrange them in an analytical manner, and in so doing, shall closely follow the method adopted by Rondani in the 5th vol. of his "Prodromus Dipterologiæ Italicæ," a work from which I have derived much valuable information respecting this genus.

ANALYTICAL ARRANGEMENT.

- A. Apex of abdomen black or grey in both sexes.
- B. Wings without spines upon the second longitudinal veins.
- C. Posterior tibiæ of ♂ bearded on their inner sides.
- D. Abdomen with two spines in the centre of the edge of the second segment.
- E. Thorax with four bristles behind the transverse suture in the two dorsal rows.
 - 1. CAENARIA, Lin.
- EE. Thorax with only three dorsal bristles behind the suture.
 - a. First anal segment shining black in ♂.
 - 2. ALBICEPS, Meig.*
 - aa. First anal segment grey in ♂.
 - 3. ATROPOS, Meig.
- DD. Second abdominal segment without central dorsal spines.
- F. Thorax with four dorsal bristles behind the suture.
 - 4. SIMILIS, sp. n.
- FF. Thorax with three dorsal bristles behind the suture.
 - b. First anal segment of ♂ extruded and shining black.
 - 5. MELANURA, Meig.
 - bb. First anal segment of ♂ mostly retracted, and, when exposed, grey, not black.
 - 6. AGRICOLA, Meig.
- CC. Posterior tibiæ of ♂ without beards on their inner sides.†
- G. Abdomen with two central spines upon the edge of the second segment.
- H. Arista with short hairs.
 - a. Arista almost bare. Third joint of antennæ thickened.
 - 7. LATICORNIS, Meig.
 - aa. Arista with short, but distinct, hairs at the base. Third joint of antennæ of the ordinary shape.
 - 8. NIGRIVENTRIS, Meig.
- HH. Arista with long hairs.
 - b. Posterior tibiæ of ♂ with a few long hairs upon their inner sides.
 - c. Surface of abdomen tessellated in the ordinary manner.
 - 9. JUVENIS, Rond.
 - cc. Abdomen marked with three longitudinal black lines.
 - 10. CLATHRATA, Meig.

* In this and the following species, as well as in many others, it is exceedingly difficult to determine the ♀ unless it is captured along with the ♂, as the distinctive characters are peculiar to the latter sex. —R. H. M.

† In some species there are a few scattered hairs. —R. H. M.

GG. Abdomen without central spines upon the edge of the second segment.

a. Abdomen tessellated in the ordinary manner. Posterior tibiæ of ♂ clothed with short soft hairs.

11. *ADOLESCENS*, Rond.

aa. Abdomen with a black central dorsal line, and lateral spots upon the posterior margins of the segments. Posterior tibiæ of ♂ bare.

12. *AFFINIS*, Fall.

BB. Wings with spines upon the second longitudinal veins.

a. Abdomen tessellated in the ordinary manner.

13. *SETIPENNIS*, Rond.

aa. Abdomen with the spots or patches arranged in lines.

b. Eyes near together.

14. *DISSIMILIS*, Meig.

bb. Eyes wide apart.

15. *INFANTULA*, Rond.

AA. Apex of abdomen red in both sexes.

I. Wings with the second longitudinal veins unarmed.

J. Posterior tibiæ of ♂ bearded upon their inner sides.

K. Abdomen with two central spines upon the edge of the second segment.

16. *HÆMORRHOIDALIS*, Zett.

KK. Second abdominal segment without central spines.

a. Black frontal stripe wider than the interval between the stripe and the eye on each side.

17. *NUBUS*, Rond.

aa. Frontal stripe equal in width to the space between it and the eye.

18. *CRUENTATA*, Meig.

JJ. Posterior tibiæ of ♂ bare.

19. *HÆMATODES*, Meig.

II. Wings with spines upon the second as well as the fourth longitudinal veins.

20. *HÆMORRHOA*, Meig.

1. *CARNARIA*, Lin., Meig., Macq., Zett., Walk., Schiner, Rond.

striata? Meig., Macq., Walk., Zett., Sch.

cærulescens? Zett., Rond.

Yellowish or whitish-grey, striped and tessellated with black. Posterior tibiæ of ♂ with long and thick beard; middle tibiæ also more or less bearded. Four bristles in the dorsal thoracic row behind the transverse suture, and two central spines on the margin of the second abdominal segment. Length, 4—8 lines.*

Head: forehead and face prominent, the latter varying in colour from pale golden-yellow to pure white, with dark grey reflections when viewed laterally. Frontal space from one-fourth to one-fifth of the width of the head in breadth in ♂, and about one-third in ♀. Frontal stripe black. Setæ upon the cheeks very small. Arista with longish hairs.

Thorax and Scutellum grey. Three broad black stripes extend the whole length of the back, and are continued more or less distinctly over the scutellum; two irregular or broken stripes are also placed on each side. Ten or twelve bristles are arranged upon the sides in two or three irregular rows, and six or seven others in a line upon each of the two lateral broad stripes upon the dorsum, four of which are always placed behind the transverse suture and two or three before it. Of the posterior ones the two hindmost are the largest, then comes a small one which is sometimes obsolete, and in front of this a stronger one, though

* By a line, I mean one-twelfth of an inch, or slightly more than two millimètres. R. H. M.

less than either of the two hindmost. Of those in front of the suture two are generally large, with a small one between them, and there are often one or two other minute ones nearer to the head (see fig. 1).

Abdomen tessellated on the upper surface with black, grey, and white patches, which reflect the light differently when viewed in different directions, but which, when looked at from behind, appear to be arranged in three black lines, and in four rows of more or less confluent white spots.

First segment almost unarmed, second with two spines placed near together in the middle of the posterior edge, and two or three others on each side. Third segment also with two central spines, and four or five lateral ones on each side, all attached to the edge of the segment. Fourth segment fringed with spines. Both anal segments in ♂ more or less extruded, covered with hairs, and shining black, but having a grey incision between them. Both thorax and abdomen in ♀ are armed as in the ♂, but the spines and bristles are smaller, and sometimes obsolete.



1

Wings: base and course of the veins more or less clouded with brown, costal spine small or wanting, generally more distinct in ♀ than in ♂. Fourth longitudinal vein armed with nine or ten short spines or teeth, which extend along its base for nearly half the distance from its point of junction with the third longitudinal, to the place where it meets with the internal transverse vein. Fifth longitudinal vein bent at a sub-acute or right angle. External transverse vein more or less sinuous.

Legs: spines and hairs numerous. All the femora thickly ciliated on their under-surfaces; those of the posterior legs armed in addition with numerous strong spines. Tibiæ all furnished with several strong spines upon their outer sides, in addition to those at their extremities; they are very numerous upon the hinder legs. The inner surfaces of the posterior tibiæ of the ♂ are bearded with long hairs along their lower two-thirds, and there is also a short beard upon the hinder surfaces of the middle tibiæ, which becomes gradually shorter from the distal and upwards. These hairs upon the middle pair of legs vary greatly in length in different specimens, being generally longest in the largest individuals. Those in which the beard upon the middle tibiæ is very long, have been considered specifically distinct by Rondani, and constitute his species *cærulescens*.* In small specimens the hairs and spines are all smaller in proportion. In the ♀ the legs are not ciliated, and are armed with fewer spines than in the ♂.

This fly is common almost everywhere. It is described as being viviparous, and its larvæ are said to be deposited in either decaying animal or vegetable substances. The pupæ of this and other species of *Sarcophaga* have often been found in the dung of animals, but this does not prove that the larvæ have lived upon it. Mr. Verrall forwarded to me several specimens of a species with a red abdominal extremity (*cruentata*) which he had bred from pupæ found in pigeon's dung. In this dung were also found the remains of dead pigeons, and it is probable that they had been the food of the larvæ.

(To be continued).

* Rondani considers his species to be identical with the *S. cærulescens* of Zetterstedt, but the latter author says nothing about the beard upon the middle tibiæ of the ♂. - R. H. M.

DESCRIPTIONS OF FIVE NEW SPECIES OF EUROPEAN
HEMIPTERA-HETEROPTERA.

BY EDWARD SAUNDERS, F.L.S.

CALYPTONOTUS PUTONI, *E. S.*

Caput nigrum; thorax luridus, antea maculâ mediâ magnâ nigrâ ornatus, basi fusco-punctatâ, angulis posticis nigris; scutellum nigrum valde punctatum; hemelytra lurida, clavi margine internâ, coriique vittâ mediâ, maculâ rotundâ terminatâ, nigris; clavus punctis, seriebus tribus dispositis, ornatus; corio intus seriebus, extus irregulariter punctato; membrana nigra, apice utrinque maculâ albidâ notato; pedes nigri, femoribus subter multi-spinosis, apicibus flavis, tibiis spinosis, tarsis testaceo-fuscis. Antennæ nigræ, articuli primi apice, quarti basi, pallidis.

Long. $3\frac{1}{2}$ lin.

Algeria.

CALYPTONOTUS WALKERI, *E. S.*

Caput nigro-fuscum; thorax antea fuscus, tergo pallidus, fusco-punctatus, lateribus pallidis, impunctatis, angulis posticis maculâque prope angulum anteriorem fuscis; scutellum nigro-fuscum, valde punctatum, apice utrinque lurido. Hemelytra lurida, punctis obscurioribus seriatim dispositis, fasciâ latâ subarcuatâ pone medium positâ, apiceque nigris. Membrana nigra, maculâ apicali albidâ notata. Pedes testacei, femoribus late fusco-fasciatis. Antennæ testaceæ, articulo ultimo nigro.

Long. $2\frac{1}{4}$ lin.

Malta. J. J. Walker.

SCOLOPOSTETHUS BREVIS, *E. S.*

S. decorato affinis, sed formâ *S. cognato* magis approximatus. Ab *S. decorato* distinguendus, formâ robustiore, thorace brevior et postea multo latiore, scutello basi non impressâ, membranâ obscuriori; antennis rufo-fuscescentibus, articulo primo, secundique basi dilutioribus.

Long. $1\frac{1}{2}$ lin.

Malta. J. J. Walker.

Species formâ distinctissima, licet congeneribus colore similis.

MACROPTERNA LETHIERRYI, *E. S.*

Caput nigrum; thorax niger, valde punctatus, in medio profundo transversim impressus, basi rectâ; scutellum brevissimum, nigrum, apice pallido; elytra pallide straminea, basi extremâ marginibusque lateralibus, pone basin interruptis, nigris. Membrana magna lactea, venis fuscis,

fasciâ transversâ latâ fuscâ, vittæ longitudinali ejusdem coloris conjunctâ, in formâ crucis dispositis, ornata. Antennæ pallidæ, articulo primo, apice excepto, quartoque nigris; femora nigra, tibiæ tarsique ferruginei.

Long. 1 lin.

Attica.

ONCOTYLUS NIGRICORNIS, E. S.

Virescens, pilis nigris dense vestitus, antennis nigris, breviter pilosis, articulo primo subviridi, prothorace antice foveolato; membrana infuscata, venis albis; subter parcius nigro-pilosus, pedibus viridi-flavis, femoribus præsertim infra nigro-guttatis; tibiis nigro-punctatis et spinosis, apicibus cum tarsis nigris.

Long. $2\frac{3}{4}$ lin.

La Rochelle. Ipse.

Species distincta et formosa.

2, Spencer Park, Wandsworth:

February, 10th, 1876.

BRITISH HEMIPTERA-HETEROPTERA—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

LYGÆINA.

TRAPEZONOTUS DISPAR.

Trapezonotus dispar, Stål, Öfv. Vet. Ak. Förh., 56 (1872); Leth., Hém. Nord., 2 ed. 21 (1874).

Black, with whitish pubescence, on the upper surface scarcely perceptible. *Antennæ* comparatively long, slender, 1st joint, in the ♂, orange. *Rostrum* orange in the ♂. *Pronotum* posteriorly much wider than in front, posterior third (except a spot in the middle, a smaller one towards each posterior angle, and round punctures, which are black), also the side margins throughout, testaceous. *Scutellum* immaculate. *Elytra* as long as the abdomen, testaceous; *clavus* with three to four rows of round black punctures; *corium* with similar but less regularly placed punctures, and at the inner posterior angle a large, rhomboidal black spot; *membrane* fuscous-black; nerves whitish, broad at the base. *Legs*:—♂, *thighs* orange, 2nd and 3rd pairs with a broad ante-apical black ring; *tibiæ*: 1st and 2nd pairs orange, the 2nd black at the base, 3rd black:—♀, *thighs* black, apex orange; *tibiæ*: 1st pair rufous at the base (I have two examples in which all the tibiæ are deep orange, the 2nd and 3rd pairs black at the base); *tarsi* in both sexes black. Length, ♂, 2; ♀, $2\frac{1}{2}$ lines.

I found a few examples on the 17th May last, in an open space among the underwood at Darenth Wood, running swiftly in the sunshine.

As Dr. Stål says, the species is very like *T. agrestis*, but it is always much larger, the testaceous colour on the upper surface lighter and clearer, the antennæ more than proportionately longer, and the pronotum comparatively wider posteriorly. The habits and habitats are also different; for, whereas *agrestis* is found hiding among moss under bushes in the open country, *dispar* runs about in the daytime in woods. *T. agrestis* having all the parts of the elytra well developed, I cannot consider *T. dispar* to be the macropterous form of it, as has been suggested.

GERRIDINA.

GERRIS ASPERA.

Hydrometra aspera, Fieb., Eur. Hem., 108, 8 (1861), J. Sahlb., Not. Fenn., xiv, 254, 5 (1875); *Limnotrechus asper*, Stål, Öfv. Vet. Ak. Förh., 397, 12 (1868); *Hydrometra lacustris*, var. c, Zett., Ins. Lapp., 282, 2 (1840).

♂. Black. *Head* quadrangular, smooth, posteriorly with a small, elongate fovea near each eye, apex ferruginous. *Antennæ* black, 1st and 2nd joints obscure-rufous, 1st longest, 3rd shortest, 2nd slightly shorter than the 4th. *Rostrum* piceous, 2nd joint ferruginous on the apical half. *Pronotum*: anterior portion smooth, hindwardly constricted and lobate, its sides somewhat rounded, incrassate; the disc depressed, with a wide middle keel; anterior margin with a small obtuse tubercle behind each eye; the rest of the pronotum, except the sides, obscure-rufous, coarsely punctured and anteriorly crenate, the middle with a slight longitudinal keel; the sides posteriorly raised into a long tubercle, opposite to which, on the disc, are two, very slight, transverse elevations: scutellar process with its posterior margin broad, flat, rounded and deeply punctured, the undercurved sides with a yellow vitta under the tubercles, indistinctly continued forwards. *Elytra* as long as the abdominal segments, black-brown, finely crenulate, anterior margin black (very often hyaline with black nerves, Sahlb., l. c.). *Wings* hyaline, whitish, slightly infumated towards the apex. *Sternum* black, silvery-sericeous, with a wide, deep, longitudinal channel, anterior to each 1st coxa a broad, ferruginous vitta; sides next the pronotum broadly nude, with a posterior silvery streak. *Legs*: *coxæ* and *trochanters* all pale ferruginous beneath; *thighs*, 1st pair black, broadly bright ferruginous beneath; 2nd and 3rd pairs dull ferruginous, paler beneath; *tibiæ* and *tarsi* dark ferruginous. *Abdomen* black, connexivum yellowish, with a black line on the margin; under-side silvery-sericeous, disposed somewhat in vittæ; the 6th segment beneath, posteriorly and on the sides yellowish, the posterior margin deeply and roundly excised. *Genital segments* underside;—the 1st, at the base, compressed at the sides, yellowish, the posterior margin in the middle straight, then carried on to a point at the sides of the 2nd, which is dark ferruginous, convex, posteriorly rounded, and with a distinct, much-projecting tubercle near its base.

Length, 4½ lines.

(♀. Tubercles of the pronotum more obsolete, 6th segment of the abdomen beneath, posteriorly slightly emarginate, and the 1st genital segment obliquely depressed at each side. Sahlb., l. c.)

A single male in Dr. Power's collection taken on Moss Morran, near Balmuto, Fifeshire, August 21st, 1872.

This species is like *G. lacustris* in form and size, but differs in the colour of its antennæ, its rufous pronotum, with the yellow streak on the undercurved sides distinct only posteriorly, its anterior legs more black, the 1st joint of the posterior tarsi shorter, the form of the genitalia, &c.

NOTE.—The name of the genus *Hydrometra*, founded by Latreille on *Cimex stagnorum*, Lin., was misappropriated by Fabricius to his genus *Gerris*, with the species of which (except *stagnorum*) it had nothing to do, the structure being essentially different. Most authors have adopted this error; Burmeister, seeing the incongruity, re-separated *stagnorum*, but instead of restoring Latreille's generic name, he coined a new one—*Limnobates* (cf. Pascoe, Ann. and Mag. Nat. Hist., Feb., 1868, and Dallas, Zool. Record, v, 353, 1869).

CORIXINA.

CORIXA PROMINULA.

Corisa prominula, Thoms., Opusc. Ent., i, 38, 20 (1869).

Above fuscous-black with obscure yellow markings. *Head* obscure-testaceous, in front evidently produced, posteriorly a short, projecting keel, with a row of punctures on each side of it; facial depression very slight and flat, extending beyond the angles of the eyes. *Pronotum* short, with six pale lines. *Elytra*: *clavus* with fine, pale, straight lines, at the base oblique but not widened, the rest often abbreviated inwardly; *corium* with irregular pale lines, often confluent externally, traversed by two longitudinal black lines, one close to the anterior margin and one near the clavus broad posteriorly: marginal channel obscure testaceous, on the basal half darker and very narrow: membrane-suture pale; *membrane* broadly black on the margins and in the middle, otherwise with irregular pale markings. *Sternum* pale. *Legs* dusky-testaceous, posterior tarsi clearer, with black cilia: ♂, *tibiæ*, 1st pair, short, tumid; *palæ* broadly cultrate, rounded externally and prolonged to a point. ♀, *tibiæ*, 1st pair not tumid; *palæ* narrow-cultrate. *Abdomen* pale beneath, base black in ♂. Length, 2½ lines.

Like *C. fossarum*, but differs in being rather smaller, narrower, sides more parallel, head more prominent in front, marking more obscure, &c. Also resembles *C. Scotti*, but differs in being distinctly larger, the *palæ* of the ♂ much broader, &c.

This species, found by Mr. H. Jenner-Fust, in the Isle of Harris, Hebrides, in 1872, I at first sight took to be *C. fossarum*, but afterwards, finding it differed, I kept it separate. It has lately been identified by Dr. J. Sahlberg as *C. prominula*, Thoms., and, as it agrees with the description, I bring it forward as a new British species.

Lee: December 27th, 1875.

On the names of some British species of Pselaphidæ and Scydmanidæ.—Some few months ago, I sent to M. F. de Saulcy, of Metz, several British species of these families, about whose correct names I entertained some doubts. M. de Saulcy has been for some time engaged on a revision of the European species of these groups of *Coleoptera*, and the first division of his work has already been published, so that his opinions are of considerable importance. I therefore give below the names under which he returned my specimens, and have added some remarks of my own, which may help, perhaps, to throw some light on M. de Saulcy's names.

1. *Tychus niger*.—This specimen is a variety small in size and with red elytra, and is possibly the form recorded formerly by Mr. Crotch in his Catalogue of British *Coleoptera* as *Tychus ibericus*.

2. *Batrisus venustus*.—I had some doubts whether this name was correct for our species, as some of the continental species are extremely similar.

3. *Bryaxis cotus*, n. sp.—This is the species taken in this neighbourhood by me, and distributed under the name of *Bryaxis Lefebvrei*; but, as I had become convinced that it was thus named by error, I sent it with the MS. name *Bryaxis cotus* to M. de Saulcy, who confirms my opinion of its being as yet uncharacterized, and will describe it under the name I have proposed. *B. Lefebvrei* was originally recorded as British in Mr. Waterhouse's Catalogue of British *Coleoptera*; and, though I have not seen the individual insect to which Mr. Waterhouse's record referred, I think it very probable that it will also be found to be a specimen of *Bryaxis cotus*.

4. *Euplectus Abeillei*.—My two individuals, one of which is thus named by M. de Saulcy, I captured some years ago at Mickleham.

5. *Euplectus piceus*.—I have found this species in the New Forest, and in one or two localities near London.

6. *Euplectus Duponti*.—I am indebted to Mr. R. Lawson for this species: it was found by him not very long ago near Scarborough.

7. *Euplectus punctatus*.—My only individual of this species was given me some years ago by Mr. Crotch, under the same name as that assigned to it by M. de Saulcy.

8. *Trimium brevicorne*, ♂.—Taken by Mr. Lawson at Scarborough,

9. *Trimium brevicorne*, ♀.—Taken by Mr. Lawson, and named in British collections as *Trimium brevipenne*.

10. *Scydmanus Sharpi*.—For this species I am also indebted to Mr. Lawson; the few specimens of it taken by him have been named, I believe, *S. rubicundus*.

11. *Scydmanus glyptocephalus*, De Saulcy.—This is the insect given me by Mr. Crotch as *S. carinatus*, and recorded by me under that name in my Catalogue of British *Coleoptera*.

12. *Scydmanus Sparshalli*.—This individual I had considered to belong to the species described by Mr. Rye as *Scydmanus præteritus*.

13. *Scydmanus helvolus*.—This species was named *S. Sparshalli* in my collection, but I have for long suspected that there existed a confusion as to this name; and Mr. Rye, in describing *S. præteritus*, has pointed out the evidence which leads him to consider that this is really the *S. Sparshalli* of Denny: whether De Saulcy be, or be not, acquainted with Mr. Rye's opinion, I do not know.—D. SHARP, Thoruhill, Dumfries; January 27th, 1876.

[I have at once sent M. de Saulcy a copy of the No. of this Magazine containing my observations above mentioned; and will make known his reply.—E. C. R.]

Note on the Trachys nana of British collections.—A recent examination of various species of *Trachys* from the south of Europe, has led me to examine also the *T. nana* of British collections; and, much to my astonishment, I find that our so-called examples of that species do not in any way agree with the description of Fabricius's insect of that name, as recognised by modern authorities on the *Buprestidae*; they have not a (comparatively) large triangular scutellum, a distinct lateral carina to the elytra starting from the humeral callus and running parallel with the margin almost to the apex, nor is the thorax deeply foveolated near the anterior angles. Our species has a small pointed scutellum, is without lateral carinae to the elytra, and without deep foveae near the anterior angles of the thorax; it is evidently to be referred to *T. pumila*, Ill., a variable and widely distributed species, occurring in France, Spain, Italy, Germany, Greece, Algeria, &c., and, according to Marseul (Mon. des Buprest., L'Abeille, ii, 515), is attached to *Marrubium vulgare*. I have received *T. pumila* in numbers from Mr. J. J. Walker, who has found it at Corfu and Gibraltar; in England I believe it has only (as yet) been found at Mickleham.

Stephens (the introducer of the species into the British list) in his "Manual," says of *T. nana*, "elytra, within the margin a short lateral ridge," as that species should have; but *T. nana* does not exist (as the "Manual" leads one to infer) in his collection at the Brit. Mus., as I have satisfied myself by examination, so I think the record (and locality, "Coombe Wood") must be considered erroneous. Our species is identical with examples labelled *T. Pandellei*, Fairm., in the Brit. Mus. Europ. coll., to which species, however, it of course bears no resemblance.

It is rather odd that two of our three British species of *Trachys* should have been erroneously recorded, viz., *T. pygmaea* (= *troglodytes*) and *nana* (= *pumila*).—G. C. CHAMPION, 274, Walworth Road, London, S.E.: February 9th, 1876.

Notes on British Terebrant Hymenoptera.—The under-noted *Cynipidae* may be added to our lists:—

Aphilothrix autumnalis, Hartig, Germs. Zeits., 1841, p. 336; Mayr, Die Mitteleuropäischen Eichengallen, p. 24, pl. iv, fig. 31. The galls of this species I have found in the autumn in Cadder Wilderness, but have not yet succeeded in rearing the flies.

Andricus æstivalis, Giraud, Verh. z.-b. Ges. Wien., 1859, p. 356; Mayr, l. c., p. 55, pl. vi, fig. 79. I have an *Andricus* taken on 20th May at Ardlui, Loch Lomond, which must I think be either the above or a new species. The galls appear on the male catkins of the oak.

Ceroptres arator, Hartig, l. c., p. 343, I have bred from some galls of *Andricus noduli* got in Kenmuir Wood.

Ægilips abietina, Dahlbom, Onych. och Callasp. Syn., tab. No. 25; Thomson, Öfv., 1861, p. 412. Taken in Inverness-shire. *Æ. subulifera*, Thomson, l. c. Taken in the same locality. The species of this genus are rather difficult to determine, and hence I am a little dubious if I have named these two species correctly (Mr. Marshall, however, thinks that I have done so).

Tetrarhaptia tetratoma, Thomson, l. c., 399, 8. From Glasgow districts, where the remaining species were also taken.

Pentacrita pentatoma, Thomson, l. c., p. 398, 6. *P. albipennis*, Thomson, l. c., p. 399, 7?

Eucoila tomentosa, Giraud, *l. c.*, 1860, p. 144, 28.

Sapholytus apicalis, Hartig, *l. c.*, p. 349. Bred from galls of *Andricus noduli*.

Allotria melanogaster, Hartig, *l. c.*, 1840, p. 200, 8; Giraud, *l. c.*, 1860, p. 129,

6. If this species be really distinct from *A. halterata*, Thomson (a species recorded as British by Mr. Marshall, in the "Annual" for 1874), it may be added to our lists; but, from observations I have made, I believe it is merely *halterata* with the wings fully developed. The typical *halterata* occurs with the wings in a rudimentary condition, the stumps only being present. Now, last summer I caught a specimen which agrees perfectly with *halterata* in size and coloration, but with one wing fully developed, and the other represented by the stump as in Thomson's insect; and as this specimen quadrates exactly with the description of *melanogaster*, it seems to me clear that the one must be merely a form of the other. I feel quite satisfied that the wings are not torn off in the process of capturing; with all the specimens that I have taken, I noticed before touching them that the wings were not present in their entirety. Thomson does not describe *melanogaster*, nor Hartig *halterata*. If I am correct in what I say, the last mentioned name must be quoted as a synonym of *melanogaster*, Hartig's name having the priority. In the collection of the Rev. T. A. Marshall, there is a specimen of *halterata* scarcely half the usual size, but apparently it is truly that insect. It appears to me, from the above discovery, highly probable that the other sub-apterous insects of this genus may be only forms of other species with the wings torn or dropped off; for, judging from my specimens of *halterata*, it seems likely that they had the wings fully developed when they assumed the perfect state.

The following *Tenthredinidæ* may also be included in our lists:—

Nematus consobrinus, Vollenhoven, Tidjs. Ent., 2nd ser., vi, p. 237, pl. 10. This is the gooseberry-feeder mentioned in vol. x, p. 21, of this Magazine. It has since been bred by Mr. J. E. Fletcher of Worcester.

N. albipennis (Klug), Hartig, Blatt- u. Holzw., 196, 22; Thomson, Hymen. Scand., i, 88, 8. Dalry, Dr. Sharp.

N. abietinus, Dahlbom, Consp., 9, 86 (1835), = *N. abietum*, Hartig, *l. c.*, 210, 44, pl. iv, figs. 11, 12, &c.; Thomson, *l. c.*, 106, 31. *Tenthredo pini*, Retz, De Geer; *N. Saxesenii*, *N. compressus*, Hart.; *N. hospes* and *N. limbatus*, Dbm., are synonyms. Rannoch.

N. pallidiventris, Fallén, Acta Holm., 1808, 120, 63; Thomson, *l. c.*, 110, 35. Cadder Wilderness.

N. punctulatus, Dbm., Consp., 9, 89; Thoms., *l. c.*, 117, 42, = *N. leucotrochus*, Hartig, *l. c.*, 193, 18.

N. crassus, Fallén, *l. c.*, 106, 41; Thom., *l. c.*, 123, 49. Not rare in England and Scotland on aspens. It is doubtfully distinct from *N. vicinus*, Lep., and *cæruleo-carpus*, Hartig (which is, I fancy, the same as *brachyacanthus*, Thoms.), recorded in Stephen's Illustrations and the Brit. Mus. Cat.

N. hyperboreus, Thomson, *l. c.*, 127. Braemar, Dr. Sharp.

N. striatus, Hartig, *l. c.*, 191, 14; Thom., *l. c.*, 131, 57. Bred from *Salix fusca* growing at Possil Marsh.

N. humeralis, Zetterstedt, Ins. Lapp., 351, 41; Thoms. *l. c.*, 132, 5. Worcester, Mr. J. E. Fletcher. This is, I feel certain, merely a black variety of *N. striatus*, and hence can scarcely be regarded as an addition, but its occurrence in this country is of interest.

N. Zetterstedti, Dahlbom, Clavis, fig. 5; Thoms., l. c., 147, 78, = *N. miniatus*, Hartig, l. c., 129, 12. Braemar, Dr. Buchanan White.

These are all the additions that I can make at present to this genus, as, until Stephen's collection has been revised, it is impossible to say what species are mentioned by him, his descriptions and those of St. Fargeau being quite valueless.

N. (Cræsus) latipes, Villaret, is, I believe, British. I have not seen the perfect insect, but the larva was sent me from Lancashire (I think it was from there, but have quite forgotten the exact locality, and by whom it was taken), and this larva I have still in my possession, preserved in spirits, and it is so distinct that there can be no mistake as to the species.

Macrophya albipunctata, Fallén, l. c., p. 104, 37; Thoms., l. c., 254, 8. Rannoch. Thomson quotes *M. crassulus*, Klug, as a synonym of *albipunctata*, but this is an error, as any one can see by comparing the two descriptions.

Strongylogaster delicatulus, Fallén, = *Selandria phthisica*, Vollenhoven, Tidjs. Ent., 2nd ser., iv, p. 123, pl. 3, fig. 4.

[*Limneria croceipes*, Marshall (*ante* p. 194). The locality for this species is Kingussie, not Cadder Wilderness. *Eumesius crassicornis* was also taken at Kingussie. *Bassus flavolineatus*, Gr., I have bred from the pupa of a *Syrphus* got on the banks of the Kelvin.]—P. CAMERON, Jun., 136, West Graham Street, Glasgow: February, 1876.

On the species of Nematus described in the Entomological Magazine.—The following are the determinations (so far as I can make them) of the *Nemati* described by Mr. Newman in the Entomological Magazine.

Nematus dimidiatus, vol. i, pl. 1 (larva), = *Cladius viminalis*, Fall.

Pristophora cineta, iv, p. 259, = either *Nematus quercus* or *Erichsoni*, Htg.; which, I cannot determine, as the description will fit both.

Nematus tibialis, iv, p. 260, = *N. hortensis*, Hartig, Blatt- und Holz-wespen, p. 197. As both descriptions were published in the same year (1837), I do not know exactly which name should be adopted.

Thomson (Hymen. Scand., i, p. 144) describes *hortensis* as having the head black, with the exception of the mouth, the feet totally pale testaceous, and the abdomen black only at the base; while, according to Hartig, the vertex only of the head is black, the posterior tibiæ and tarsi are of the same colour, and on the dorsal surface of the abdomen there is a broad black band on each segment. It is quite evident that the learned Swede has described a species quite distinct from the true *hortensis*.

Euura gallæ, loc. cit., cannot be recognized.

E. cynips, l. c., is in the same predicament, but it may be, perhaps, *N. saliceti*, Fall., = *mucronatus*, Htg.—Id.

Note on Cladius Drewseni, Thomson.—I have detected some specimens of *Cladius Drewseni*, Thomson, Hymen. Scand., i, p. 73, 4, among a number of insects (from England) belonging to Messrs. T. A. Marshall, McLachlan, and Marsh; and I believe I have Scotch specimens in my own collection. We have now, in Britain, all the North European species of *Cladius*.

Cladius æneus, Zaddach, might reasonably be expected to occur in this country. It is very like *C. Drewseni*, and the larva feeds on *Salix pentandra* and *triandra*.

C. tristis, of the same author, is, I have no doubt, identical with *C. Brullæi*, Dbm. The specific distinctness of *C. tener*, Zadd., can scarcely be decided until the ♂ has been found.—ID.

Note on Argynnis Dia.—I have to announce an undoubtedly British specimen of this fritillary. It is a female, and was taken in 1872 at Worcester Park, Surrey, by a connection of my own, Master Wallace A. Smith. He could not identify his capture, and placed it apart by itself. Very recently, on my looking over his insects, he drew my attention to the specimen as something peculiar: he perfectly recollects making the capture, and the exact spot where it was made. I found the specimen pinned and set in beginner's fashion. Mr. Wallace Smith has never had to do with any dealer or collector; and, except things given to him by me, his cabinet contains nothing but what he captured himself.—W. ARNOLD LEWIS, Temple: February 14th, 1876.

A fortnight at Ventnor in October.—A fortnight's work at the ivy between Ventnor and St. Laurence in October sounds promising enough, but in fact last year I found its results not a little disappointing. The weather certainly was unfavourable and cold; it was also generally moonlight, and the ivy's attraction suffered perhaps from want of concentration; but, making every allowance for this, the returns were indeed meagre, considering the locality. *Phlogophora meticulosa* alone was consistent and unremitting in its attendance, poorly backed up by *Anthocelis pistacina* and *Cerastis vaccinii*. My best and, indeed, only good capture was one *Heliothis armigera* which appeared on the 19th, a night so bleak and unprofitable that I was almost beginning to look for *Dasycampa rubiginea*. It was a ♀, and I should have been grateful for two or three eggs, but in this respect I was not to be humoured. Other captures were *Agrotis saucia* (of which I amassed half-a-dozen wasted specimens), five *Epunda lichenea* (from which I obtained a few eggs—unfertilised), one *Calocampa exoleta*, three *Epunda nigra*, a few *Orthosia macilenta*, and one *Noctua glareosa* (this last quite fresh, though on Wimbledon Common it had been over nearly a month earlier). Of many common insects, such as *Agriopis aprilina*, *Hadena protea*, *Orthosia lota*, and *A. litura*, I saw no trace.

On the 20th (the last night of my stay), the weather changed. For the first time it was both dark and warm. *En route* for the ivy, I found ichneumons so common at the lamps, and was so elated by the capture of *Nonagria crassicornis* in a similar situation (the first insects I had seen at light during my stay), that I foolishly broke the charm by returning for a reinforcement of pill-boxes and pins.

Bidding farewell to the ivy, I noticed what looked like a *Notodonta* on one of the lamps; a climb revealed *Dasypolia Templi*! Now, on this esplanade there are five lamps and no more, and on these five lamps I found ten *Templi*, just two on each. Very probably there were more, as two of the lamps were difficult of inspection, and *Templi* has a decided partiality for the dark corners and the uprights. Curiously enough, on the other lamps in the town, many of them lighting the terraces which wind up from the esplanade, and not fifty yards distant, I could not detect a single specimen. This species seems rather common in the North (indeed, "live females" appear to be the principal stock-in-trade of the Barnsley Entomologists), but I believe it has always been scarce in the South, and the occurrence of ten specimens on half as many contiguous lamps is probably unprecedented.—C. J. BUCKMASTER, Sussex Lodge, Southfields, Wandsworth: February, 1876.

Caradrina cubicularis in February.—I took a specimen of this moth in my sitting room last night. Has its occurrence in winter been previously noticed?—C. A. BRIGGS, 55, Lincoln's Inn Fields: 24th February, 1876.

Notes on the Tortrices of Pembrokeshire.—*Penthina cynosbatella*, L.: I took a most charming specimen of the whitest form of the var. *nubiferana* sitting on a hedge, in a lane near the sea cliffs.

Penthina marginana (oblongana) occurs here also, though I have seen as yet but few specimens. I am still unable to persuade myself that it is at all a rare species.

Spilonota roborana. An unexpected form of this species has occurred: I was on the look out all the season, among the immense abundance of *Rosa spinosissima* on the coast for *Sp. amœnana*, to replace my old specimens, but, to my great surprise, did not find one. *S. roborana*, however, occurred commonly among that plant, having the ordinary white ground colour of the wings strongly tinged with pink, and irrorated with grey; one or two specimens being quite suffused with the latter colour. Along with it were *Peronea aspersana*, *Sericoris conchana*, and *S. cespitana*, flying in plenty, the last named showing the rich reddish and drab varieties, such as are found on the Irish coast.

Euchromia purpurana. Stray specimens occurred in the limestone quarries, but at the end of July I found it flying commonly further down the Haven, among clover and long grass, but nearly every specimen was worn to a shadow.

Euchromia ericetana. One specimen among coarse herbage.

Sciaphila perterana?. Common on the coast and also on the shores of the Haven, and to be found some distance inland. Apparently the same species as that which is found so commonly at Folkestone, although the peculiar, almost unicolorous, whitish-grey form seems to be entirely absent here, and the connection is maintained solely by the better marked grey Folkestone varieties, and the females. Certainly mine are identical with specimens that I have received several times from Lancashire, Paisley, and other northern localities, and which have hitherto been referred to *perterana* with considerable doubt, from their larger size. Pembroke specimens, however, vary in size, from that of the Folkestone examples to that of *Sc. Penziana*. The males are all grey—darker or lighter—with fairly distinct markings; and some of them have a dark costal triangle like that upon the fore-wings of *Peronea sponšana*, but the females are very handsome,—white, more or less irrorated with grey flecks, and with dark grey, well-defined markings, that in some individuals almost cause them to rival *octomaculana* in beauty. In length and form of wings, and in the great difference between the sexes, this species is closely allied to *Phaleroptera ictericana*. Its larva feeds in blossoms of composite plants—*Chrysanthemum*, *Crepis*, *Hieracium*, *Bellis*, &c., in May and June. It turns down the ray florets of *Chrysanthemum leucanthemum*, to form a habitation, as artistically as the spiders which lurk upon the same flowers.

Capua ochraceana. Rather common along the edge of a wood of mixed growth, but without, I think, any hornbeam. Its food plant is still a puzzle.

Ephippiphora signatana. Scarce; only obtained among blackthorn, on which I expect that the larva will be found to feed.

Dicrorampha acuminatana. I found the May and June brood here quite common. It is well known on the continent to be double-brooded, but, as far as I

know, had only been previously taken in this country in August. Unfortunately, I had no opportunity of ascertaining whether it appeared again at that time here. The females were of an unexpectedly rich brown colour, showing, when fresh, but little trace of the purple scales, so conspicuous in the male. Along with this species appeared *D. plumbagana* and *plumbana* of course, also *Halonota cirsiana* in plenty; *Cochylis stramineana*, and the lovely red varieties of *Chrosis tessarana* which are so little known on the continent.

Dicrorampha tanaceti. This species turned up, to my great surprise, rather commonly at Tenby, not among *Tansy*—there appearing to be none in the immediate neighbourhood—but sitting on and flying among large plants of *Heracleum sphondylium*. To me this is mysterious.

Dicrorampha consortana. A few specimens occurred in the quarries.

Catoptria cæcimaculana. I am happy to have found the district in which this species is pretty common, and it is not on the chalk hills of the South of England. The mountain limestone of this district, however, seems to suit equally well all those species that can stand the climate. The best localities are the extensive quarries which skirt some of the branches of the Haven, the broken and irregular soil of which is covered in part with a luxuriant growth of furze, blackthorn, blackberry, dewberry, and hemp-agrimony, and in part with vast masses of red valerian (*Centranthus ruber*), and the more scattered abundance of wild flowers which love such a soil. Of these, *Centaurea nigra* is evidently the "peculiar vanity" of *cæcimaculana*, and in its seed heads I expect that the larva will be found, but pressing business and distressing weather prevented my visiting the quarries in the autumn, and the solution of this question is therefore deferred for the present. As a rule, this species is exceedingly constant in colour and markings, but I met with two specimens in which all the markings and irrorations are ochreous, instead of the usual brownish-grey.

Eupæcilia atricapitana. As usual, distributed all round the coast among ragwort, but nowhere common.

Eupæcilia hybridella. Occurs in the most sheltered hollows in the quarries, does not fly freely till dusk, and is, therefore, not very easy to obtain. Not so white as specimens from the chalk, but most exquisitely tinted with rose colour.

Eupæcilia affinitana. Common on the narrow strips of salt marsh along the margins of the Haven, occasionally flying up in the sunshine, along with *Sericoris littorana*, but more frequently to be obtained at sunset, when every few yards of marsh will sometimes produce a specimen. I have known it, however, for some inexplicable reason, quite lively in the middle of a cool windy afternoon.

Eupæcilia vectisana. Very rare on the strips of salt marsh which *affinitana* loves, but apparently attached to more sheltered spots. In a little bit of marsh only a few yards in extent, but sheltered by reeds, I found it in abundance. Of these two species I only met with the June brood, being prevented from collecting in the autumn.

Eupæcilia rupicola. Apparently distributed all over the neighbourhood, and in some places common. Its food plant, *Eupatorium cannabinum*, instead of being confined to marshy places, asserts itself in this neighbourhood, and being encouraged by the abundant moisture, even takes entire possession of the tops of hedge banks, or covers the sides with its grand masses, occupies large hollows in the sides

of hills in the quarries, and makes itself generally at home. Consequently, *rupicola*, faithfully following its fortunes, turns up in unlooked for places as an agreeable surprise. From the coarse scaling of its wings, it however very soon becomes worn; and as it only condescends to fly for about half-an-hour—from five to half-past—in each afternoon, the capture of a really fine series is not easy. It is possible on fine days to turn out a specimen or two by disturbing the *Eupatorium*, but after its half-hour of very brisk flight around the plants is over it is hardly possible to find. —CHAS. G. BARRETT, Pembroke: November, 1875.

On the egg of Cymatophora ridens.—I have been greatly interested in examining the egg of this species, kindly sent me in May last by Mr. G. C. Bignell. Had he not told me to what species it belonged, and had not the larva on its appearance fully convinced me that my friend had made no mistake, I should have set it down for the egg of a Geometer, not of a *Noctua*.

Its form is longish, cylindrical, but with one end stouter and fuller than the other; the shell glossy, covered all over with irregularly-triangular reticulation, arranged in longitudinal rows not always well defined; the colour, till just before the hatching of the larva, pale vermilion red.—J. HELLINS, Exeter: November 17th, 1875.

Note on Syricthus alveolus.—I hardly know if it is worth recording that a larva, reared from an egg deposited by a butterfly of the type form, has resulted in an imago of the variety *lavatera*, Haw.—ID.

Description of the larva, &c., of Agrotora nemoralis.—I am indebted to the kindness of Mr. H. Tugwell for eggs of this species, which reached me on the 4th of last June. Unfortunately, I was not able to place the larvæ, immediately on their being hatched (June 8th), upon their food, and from this cause most of them afterwards came to grief; they are so small and delicate that they cannot bear moving. As soon as I could, however, I procured hornbeam leaves and shoots, having been informed that the moths were all captured off a hornbeam hedge, and not knowing in what condition they would be most acceptable, placed leaves in all stages—young, matured, and withered—in the bottle with the larvæ. Had I been able to let the larvæ at once have access to leaves just unfolded from the bud, I have little doubt all would have gone well. As it was, their strength seemed gone, and they died off without feeding, till I thought I had not one left; luckily this was not the case, for after waiting a few days I examined the food again carefully, and found I had one larva alive and doing well; this fed on and thrived, till about July 20th, when it spun up for pupation.

How the moth would deposit its eggs in a state of freedom, I cannot say: those sent to me were laid singly on the sides of the pill-box; they were very soft in appearance, and though somewhat oval in outline not regularly so, very flattened, the shell finely but unevenly pitted all over, almost translucent, in fact looking like tiny spots of grease.

The newly-hatched larva has the head remarkably large for its size, and has longish bristles on the usual warts; it is semi-translucent, pale greenish in the body, the head pale brown. When it has fixed itself with a few silken threads between two ribs on the under surface of a young leaf of hornbeam, it is at this stage almost invisible; and for some time it lives in this way under a protection of silken threads,

the head still keeping its relative size, growing bigger as the body grows, until the larva is about half-grown; then it begins to feed between united leaves, and the figure assumes other proportions. When full-fed, the larva is about three-quarters of an inch long, slender in figure, the head flattish and as wide as second segment, the body stoutest about seventh, eighth, and ninth segments, thence tapering both to the head and the tail; the anal pair of feet stretched out behind; the skin very glassy and glistening though somewhat wrinkled: the colour of the head pale orange-brown, the antennal papillæ paler still and tipped with black, the mouth brown, the ocelli black, and a black spot at some distance behind them on the side of the head; the back as far down as the spiracular region is of a rather brownish-olive green, the dorsal line darker olive green: an undulating row of internal darker blotches runs along in an interrupted manner a little above the spiracles, showing plainly through the translucent skin; the spiracles very small and inconspicuous, being of the ground colour ringed with brown; below them the rest of the side, and the belly and legs, are of a uniform tint of very pale watery-olive greenish; there is a fine hair from each tubercular situation.

By the end of the third week in July, that is after feeding about six weeks, the larva spun up, forming for itself a cocoon in a very clever manner from a leaf of hornbeam; taking as its standpoint a spot nearly in the centre of the midrib, equidistant that is from the tip of the leaf and the footstalk, and cutting through the midrib itself at that point, but leaving about one-eighth of an inch of the leaf uncut to serve as a footstalk to its cocoon, it proceeded to make two semi-circular cuts towards the tip of the leaf, but at a slight inclination towards the left, so that further on the midrib was again severed by the right cut, and the place where the two cuts met was on the left edge of the leaf (looking at it, that is, from above) not very far from the tip; using then the midrib of this semi-detached circular piece as the backbone of its structure, the larva bent down the two sides of the piece, and fastened them together all along their edges; the cocoon thus formed is rounded along the upper outline, and with its sides rather flattened till they meet in the sharp lower edge.—ID.

Description of the larva, &c., of Pterophorus dichroductylus.—On June 8th, 1875, Mr. John Sang, of Darlington, very kindly sent me several larvæ of this species, in various stages of growth, mining within stems of *Tanacetum vulgare*.

As soon as their food began to wither, fresh sprays of tansy were provided for the larvæ, which, often as this occurred, readily left the old stems to commence mining into the fresh ones.

The mouth of the mine is generally between the axil of a leaf and the stem, with a few silk threads spun from one to the other, just above it, among which the dark olive or blackish frass becomes entangled, as the larva pushes it out from time to time in its course head downward; the quantity there increases more and more, until at length the accumulation becomes very conspicuous, and betrays the presence of the larva.

While immature, the larva is darker in its colouring than it afterwards becomes; it is blackish-green when not more than a quarter of an inch long, glaucous-green with grey stripes when about three-eighths in length; but, when full-grown, the larva measures a little more than half an inch, its figure moderately slender, cylindrical, and tapering a little from the third segment to the head, which is rather rounded;

it tapers also from the eleventh segment to the end of the thirteenth: the segmental divisions are well defined on the back, and rather deeper on the belly; the legs all tolerably well developed.

The colour of the head is very pale, either of a brownish-yellow or greyish-yellow, semi-pellucid and shining, the ocelli large and blackish, the mouth blackish-brown; on the second segment, is a shining plate of the same colour as the head, bearing minute blackish dots, and another plate of similar tint is on the anal tip; the rest of the back is either a lively green, or else a rather subdued transparent light green, bearing a dark olive brownish pubescent or bristly dorsal line; a naked stripe of opaque greyish, or whitish-grey, follows at a short interval, on which the minute tubercular black dots are visible; then comes the sub-dorsal thinner stripe of the transparent greenish ground colour, and then another naked thin stripe of greyish, which is succeeded by a broad lateral band of the ground colour, but so thickly covered by a minute bristly kind of brown pubescence as to assume an olive hue, and just within its lower margin are the circular brownish-red spiracles, outlined with black, and surrounded with a ring of naked ground; beneath them runs an inflated and puckered stripe of opaque greyish-white, relieved below by a line of the brown pubescence; the belly and all the legs are of the pale greenish-ground colour, and but very slightly pubescent; on the belly, between each pair of the anterior legs, at their base, are two black spots; the ventral legs tipped with dark brown.

The pupa, which is attached by the tail to the stem, or to a leaf, is half an inch in length, slender, with a longish beak in front projecting at a slight angle downwards from the head, pointed at the tail; the wing-covers of moderate length, well developed, and the ends of the leg-cases projecting free from the abdomen: its figure, in repose, is a little curved, so as to be concave on the back. In colour it varies, some examples being very pale greenish, others light pinkish-grey, while others again are dark reddish-grey: in the pale green variety the characteristic darker markings, though partially present in deeper tints of greenish, are more tenderly rendered than in some of the greyish varieties, which are marked as follows: the beak is white above, and black at the sides; on the thorax a blackish-brown dorsal stripe widens and then narrows, and from thence passes down of uniform width to the tail; on the thorax it is margined with a line of white; the sub-dorsal line is blackish-brown and rather interrupted; between this and the dorsal stripe, on each segment, are double dark brown streaks a little divergent; these are strongly marked on the anterior segments, but more faintly, by degrees, on the hinder ones; at an interval below the sub-dorsal, another brown line occurs, rather interrupted; the lateral line is white, bordered beneath by a stripe of black; the ventral surface of each segment has a broad central somewhat squarish mark of light brownish-grey, and a fine sub-ventral line of similar tint much interrupted; the wing-covers brownish-grey with whitish rays.

The moths appeared at intervals from the 28th June to the 5th July.—WM. BUCKLER, Emsworth: *January 28th, 1876.*

Description of the larva, &c., of Pterophorus microdactylus.—To Mr. Wm. H. Grigg, of Bristol, I have been indebted for the good opportunity afforded me of studying this interesting plume larva, by his very kindly sending me a number of examples on the 26th July, 1875, which, two days before, he had found in the flowering stems of *Eupatorium cannabinum*.

Mr. Grigg also acquainted me with his having taken, at the same time and place, nine fresh specimens of the moth, at the very spot where they occurred plentifully in May of the previous year,—hence he inferred the insect to be double-brooded.

I found it no easy matter to keep the stems, in which these larvæ were living, from either drying up or turning mouldy; from these mishaps, and from the larvæ refusing to enter the fresh stems provided for them, most of the number died:—however, I was at length well pleased at being able to breed three specimens of the moth on August 8th, 9th, and 19th, and a fourth a fortnight later, thus satisfactorily proving their identity.

Most of these larvæ were mining, singly, within the stems, near to the axils of the leaf stalks, though three or four had their mines situated midway between the axillary branchings near the top of the plant; the small hole at the entrance of a mine is not very readily detected, for although frass is probably extruded from it, especially at first, yet I found none hanging outside the entrance, and only a fine dust at the bottom of their cage gave evidence that a small quantity must occasionally have fallen out of the holes; the mines always appeared lightly filled up from within, just level with the surface of the stem, and so the orifices not contrasting much in colour, were not very conspicuous from being no more than one-sixteenth of an inch in diameter.

The youngest larva examined I found to be just one-eighth of an inch long, and possessed of all the details of form, colour, and other characteristics that so well distinguish this species of *Pterophorus* from any I have as yet seen, inasmuch as it is furnished with rough points or hooks, in many respects much like those we know so well on the pupæ of *Cossus* and of *Hepialus*; doubtless these are both for support and progression within the very tough stem where it resides.

The full-grown larva is one quarter of an inch in length, plump in proportion, in general figure somewhat cylindrical, but tapering forwards to the head, which is smaller than the second segment, the last three segments also tapering to the anal tip; the anterior legs are but little developed, while the ventral and anal legs are so exceedingly small as to be with difficulty detected even with a lens; the segments are well-defined, the first third of each, after the thoracic segments, is clean cut backwards with an upward slope, and the summit of this slope is crested with a row of minute rough points, or blunt hooks, extending unbroken across the back, rather near towards the spiracular region; on the middle portion of the remainder of each of these segments is a broadish oblong transverse band of the rough points dorsally divided by a naked, or nearly naked, interval of smooth skin; similar points occur also across the thoracic segments, but in a narrower shape, and on the second they fill up the usual form of plate there; those on the twelfth segment, and the front of the thirteenth, are very much coarser, and closely aggregated.

The colour of the shining head is light yellowish-brown, tinged with deeper brown on the crown of each lobe, the ocelli and mouth darker brown again; the body is of a slightly livid flesh colour, becoming a trifle paler and yellower on the three or four hinder segments; a distinctly paler dorsal line is visible, and bisects both the bands of blackish rough points, and the anterior plate of them, though on this last it is a mere fine thread; the skin generally is smooth, and glistens a little; the spiracles are circular, a trifle raised, wart-like, brown in colour, with a whitish

centre; above each spiracle is a wart-like tubercular slight eminence; on the sloping surface, in front of the segments, are a pair of transversely elongate oval black-brown rough spots; the anal tip is dark brown.

On August 2nd, I opened a stem and found the pupa lying in a small cleared space just above the middle of the mine, its head uppermost in a slanting direction towards the entrance, its tail steadied by a few threads spun on some frass, of which the mine below was full, there was some also above, and a little about the entrance, dry and mixed with silk: the pupa itself was a quarter of an inch long, rather slender, the thorax rounded and well-defined, emitting a few bristly hairs, the head and eyes rather prominent, wing-covers long, the leg cases reaching to the penultimate abdominal ring from which they hung free; on the abdomen were sub-dorsal, lateral, and sub-spiracular rows of blunt hook-like processes, in pairs, those on the last ring the most projecting: the whole surface rather glistening, and the colour a dark bronzy-green.—ID.

Sphinx convolvuli at Epsom.—As I have seen so many instances of the occurrence of *Sphinx convolvuli* in 1875 noticed in your Magazine, it may not be uninteresting to your readers to give four more. On the 17th September, a beautiful specimen was brought me by a gardener, who took it on some palings close by; another was sent me on the 23rd September by some gentlemen, who caught it while smoking in a verandah; a few days after this, two more specimens were seen flying round a holly tree on the lawn.—A. V. JONES, The Shrubbery, Epsom: *January 24th*, 1876.

Note on sugaring.—I think your correspondent, Mr. W. Sandison (*ante*, p. 207), should have had more than one evening's trial before publishing his experience of sugaring near ivy when in bloom. He says, "the night was peculiarly favourable for the trial," &c. He ought to have stated if there had been rain during the earlier part of the day, or if a heavy dew were on the ground; as it is well known that flowers saturated with wet lose their attraction for insects. I am led to suspect this was the case, as Mr. Sandison says he only found five or six moths on the ivy, whilst they occurred in profusion on the sugared sticks. His theory would have been much more conclusive had the moths been plentiful on the ivy flowers, *as well* as on the sugar, for of course, if the flowers were wet, the greater probability of the moths being attracted to the sugared dry sticks placed on the ground by your correspondent.—GEO. T. FORMITT, Huddersfield: *February 4th*, 1876.

Capture of living Hemiptera, natives of the Cape of Good Hope, in the London Docks.—Early in September last, the brother of a friend of mine observed, upon a piece of old sail at the river entrance of these docks, some creatures in motion, and having procured a boat hook or an instrument of a similar kind, he succeeded in landing the fugitives—three in number. They were handed to me, and I soon ascertained they were the *Cryptacrus pinguis*, Germ. They appeared to be as healthy as though they had been snatched from off their food plant, and had evidently fared well on their passage hither. What they could have subsisted upon is a mystery, as the vessel in which they are supposed to have come, either the "Princess of Wales" or the "Antipodes," brought only the usual cargo of hides, tallow, wool, &c., from

the place. One of them since lived for six weeks upon a very liberal allowance of blotting paper, saturated with water from time to time.—JOHN SCOTT, Lee: 13th January, 1876.

Von Salis Marschlins: another addition to *Hagen's Bibliotheca*.—To the three references of insect literature ascribed to this writer in Dr. Hagen's invaluable work, must be added the following, which I stumbled on in Anthony Aufrere's translation from the German (1795) of "Travels through various provinces of the Kingdom of Naples in 1789, by Charles Ulysses of Salis Marschlins," pp. 102 and 103. The original work I have been unable to see. In speaking of the two islands situated at the entrance of the outer harbour of Taranto, called "Chærades" (obviously a misprint for Chærades) by Thucydides, afterwards "Electrides," and then Santa Pelasgia and Sant' Andrea, he gives the following results of an excursion to the former of them:—"In the meanwhile I hunted for insects, or looked for shells upon the shore. Of the former I found only these few. *Scarabæus sticticus*; *Scarabæus hirtellus*; *Silpha atrata*, and the following *Silpha*, which I could not find either in Linnæus or Scopoli, the only entomological books to be met with at Taranto. *Silpha tota atra*, opaca, sutura nitente, linea unica elevatiuscula, subtus nitidissima, thorace subdentata, antennis extremitatibus fuscis; if not otherwise described, it might be called *Silpha Chæradica*.

Chrysomela speciosa; *Cimex Hyosciami*; *Papilio Algira*; *Papilio rubi*; *Phalæna geometra undulata*; *Phalæna geometra tota testacea*; *Phalæna Tinea Colonella*; *Empis pennipes*, and *Tipula rivos*a."

It may be of interest to Conchologists to note that this work contains an appendix, pp. 435—513, with four coloured plates (vi—ix), entitled "A Catalogue of such Shells" [85 species] "as came to my knowledge out of the sea, that bounds the Kingdom of Naples," in which the literature of the subject is reviewed, and the following new species described: *Patella scissa*, p. 449, pl. vi, fig. 1, *Conus humilis*, p. 451, *Murex fusiformis*, p. 463, *M. Sanctæ-Luciæ*, p. 464, pl. vii, fig. 6, *Turbo flammeus*, p. 471, pl. viii, fig. 11, *Haliotis pellucida*, p. 475, *Solen violaceus*, p. 477, pl. ix, fig. 12, *Tellina fasciata*, p. 479, *Mytilus solen*, p. 505, pl. ix, fig. 5.—E. C. RYE, R. G. S., 1, Savile Row, W.: February, 1876.

An insect organ builder.—The *Acacia* groves extend (country of the Shillooks) over an area of a hundred miles square, and stretch along the right bank of the stream. The kind which is most conspicuous is the *A. fistula*, and which is as rich as any other variety in gummy secretions. I choose this definition of it from its Arabian appellation "soffar," which signifies a flute or pipe. From the larvæ of insects which have worked a way to the inside, their ivory white shoots are often distorted in form and swollen out at their base with globular bladders, measuring about an inch in diameter. After the mysterious insect has unaccountably managed to glide out of its circular hole, this thorn-like shoot becomes a sort of musical instrument, upon which the wind as it plays produces the regular sound of a flute; on this account, the natives of the Soudan have named it the whistling tree. [Schweinfurth's "Heart of Africa," vol. i, pp. 97, 98].

Proposed list of insects found in Kent and Surrey.—The Council of the South London Entomological Society have decided to attempt the publication of a list of

insects found in Kent and Surrey; and, for the purpose of showing, as fully as possible, the distribution of *Lepidoptera* in these two counties, I venture to ask for help from entomologists who are able to furnish local lists, more especially of districts above twenty miles from London.—J. PLATT BARRETT, 34, Radnor Street, Peckham.

ENTOMOLOGICAL SOCIETY OF LONDON: Anniversary Meeting, 24th January, 1876.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

The following gentlemen were elected Members of the Council for the present year, viz.: H. W. Bates, F.L.S., A. G. Butler, F.L.S., G. C. Champion, J. W. Dunning, M.A., F.L.S., F. Grut, F.L.S., Sir J. Lubbock, Bart., &c., R. McLachlan, F.L.S., R. Meldola, F.C.S., Rev. R. P. Murray, M.A., Sir S. S. Saunders, C.M.G., H. T. Stainton, F.R.S., Prof. J. O. Westwood, M.A., F.L.S., and J. J. Weir, F.L.S. Prof. Westwood was elected President, and Messrs. J. J. Weir Treasurer, F. Grut and R. Meldola Secretaries, and W. E. Poole Librarian.

An Address was read by the outgoing President, which was ordered to be printed; and the meeting terminated by a vote of thanks to the retiring officers, Messrs. McLachlan and Janson acknowledging the same.

February 2nd, 1876.—The President, who was absent, appointed Sir S. S. Saunders and Messrs. Bates and Stainton as Vice-Presidents for the year. Sir S. S. Saunders took the Chair.

E. Y. Western, Esq., was elected a Member.

Messrs. McLachlan and Bates called attention to the habits of *Cychnus cylindricollis*, Pini, from Mont Codeno, as detailed by M. Baudi in the "Petites Nouvelles entomologiques" for February 1st. This species, which has only been found in the locality named, attacks a species of *Helix* (*H. frigida*), its long head and prothorax enabling it to penetrate the interior of the snail shell.

Dr. Sharp communicated a paper on the *Staphylinidæ* of the Amazon Valley, chiefly worked up from the materials collected by Mr. Bates. He described 487 species, of which 467 were new; but he estimated the probable number existing in the Amazon regions at 4000 to 5000. Naturally, many new genera were included. Being interrogated as to the proportion the small forms of *Insecta* bear to the larger in a tropical country, Mr. Bates said he believed it would prove the same as that which we find in Europe, but the larger forms were, of course, more commonly captured in a country where so many new and fine species were to be found.

Obituary.

Dr. Ludwig Redtenbacher.—It is with great regret that we record the loss of this well-known Coleopterist, who died at Vienna on the 8th ulto., after a long illness, in his 63rd year. The list of his works is not a long one, for he was no voluminous distributor of separate copies; nor did he habitually describe new species (though his contributions to science in that respect with regard to the voyage of the *Novara*, and also Kotschy's collections from Syria and the western Taurus, are well known); but his excellent descriptive treatise on the *Coleoptera* of his country, forming a thick volume of the "Fauna Austriaca," and of which he lived to see the completion of a third edition, will always keep his name familiar to European Coleopterists, if only for the sake of its instructive introductory portion. Dr. Redtenbacher was for many years Director of the Royal Vienna Zoological Museum. He retained his interest in Entomology to the last; and scarcely a month before his decease made a careful examination of types and communicated some resulting observations to this Magazine.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Revision of the Family DELTOCEPHALIDÆ, with descriptions of new and hitherto unnoticed British species.

This forms the 3rd of the sub-genera into which Burmeister in his "Genera Insectorum" divided his genus *Iassus*. Of his remaining sub-genus, *Platymetopius*, there is no British representative known, although, from the wide range of one of the species (*P. undatus*), it might be expected to occur here. But by far the most perplexing of the whole group is that with which I am at present dealing; minute in size, and as unstable in colour and markings (in many of the species) as it is possible to conceive, I find it an almost hopeless task to convey anything like certainty in the descriptions as to which species is meant, although I have done my best to do so, and therefore a careful examination of the genitalia is alone sufficient to enable students to determine between them. For those who do not work with the microscope, but who do or can possess the "Verhandlungen d. K. K. z.-b. Gesellschaft in Wien," vol. xix, in which is Dr. Fieber's Synopsis of the European species, the examination of the form of the posterior margin of the last segment of the abdomen of the ♀ of the various species, and comparison with the figures which he there gives, will modify considerably the difficulties encountered on the threshold of the task, and this can be accomplished with the aid of an ordinary lens. These insects are most generally met with by sweeping among heath, or in meadows, or on the margins of fields and woods, and in some instances occur in countless profusion. All our species may be said to consist of two kinds, viz., green or yellow and ocellate, and I have so sectionized them in the following paper, imperfect although I fear it is, believing that more ease will be experienced by those who try to work them out by this than any other method.

SECTION A.

Green or yellow species.

1. Apex of the elytra without a black margin.

Very pale green, slightly farinose. *Face* pale brown; round the upper margin a broad black line interrupted at the apex.

Head—*crown* pale brownish-yellow, somewhat farinose; width between the eyes at least one-third shorter than the length down the centre; sides between the anterior margin of the eyes and the apex equal to the breadth across the former; on each side of the apex a very short, slightly diagonal, black streak. *Face* pale brown, with a white central longitudinal line, widest on the frons, and six or seven transverse white lines on

each side, the first two or three faintly bi-undulate; upper margin with a broad black line, interrupted at the apex, and joined to the short streaks on the crown; side margins very narrowly black, most perceptible from the upper margin to in a line with the insertion of the antennæ. *Antennæ* very pale brown; *setæ* brown towards the apex.

Thorax—*pronotum* very pale yellowish-green, slightly shining, slightly farinose; length down the centre about equal to one-half the breadth; posterior margin almost straight across the scutellum. *Scutellum* pale yellowish, slightly farinose. *Elytra* as long as the abdomen, pale green, slightly farinose, somewhat shining; nerves fine, pale, almost white. *Sternum* pale yellow. *Mesosternum* with a large, almost round, black spot on each side. *Legs* pale yellow. *Tibiæ*: 3rd pair with a short, fine, black line on the inner margin at the base; spines pale, inserted in small brown punctures. *Tarsi* of all the pairs pale yellow. *Claws* brown.

Abdomen pale yellow.

Length, $1\frac{1}{2}$ line.

1. LONGICAPUT, *n. sp.*

This species will be most easily recognised by the long head, black line on the upper margin of the face, and the almost round black spot on the mesosternum. I only possess a single ♀, but have no record of the date of capture. It has been compared not only with the Fieberian collection, but also with his drawings, and differs from everything therein contained.

Very pale green, shining. *Crown* pale greenish-yellow; length down the centre about equal to the width across the anterior margin of the eyes; apex on each side with a short, slightly diagonal, black line. *Face* pale yellow, with four broad, transverse, black lines on each side, the upper one broadest and joined to those on the crown; apex broadly pale yellow. *Cheeks* black, lower margin yellow. *Loræ* yellow, upper margin black.

Thorax—*pronotum* and *scutellum* pale greenish-yellow. *Elytra* very pale green, shining, ♂ longer than the abdomen, ♀ as long as the abdomen; nerves fine, almost white. *Legs* pale yellow. *Thighs*: 1st and 2nd pairs with a broad black ring near, and a narrow one of the same colour in, the middle; 3rd with a black line along the upper and under-side, not reaching the apex; upper margin black. *Tibiæ* pale yellow; inner margin of all the pairs narrowly black; 2nd and 3rd, outer margin with pitchy-black punctures, in which are inserted the pale spines.

Abdomen: ♂, underneath piceous, sides broadly brown or brownish-yellow; last segment yellow; genital segments yellow, clothed with long pale hairs. Length, $1\frac{1}{2}$ line.

2. MULSANTI, Fieb., = *striifrons*, Kirschb.

This species has a shorter crown than the foregoing, and neither is the apex so acute; the black transverse streaks also, sloping rapidly off towards the lower margin of the eyes, sufficiently serve to separate them.

Apparently scarce. Taken by Mr. Douglas and myself at Croydon in June.

Yellow. *Elytra* slightly longer than the abdomen, pale, almost transparent; nerves fine, white.

Head—*crown* and *face* yellow, without markings; length of the former down the centre equal to the breadth across the anterior margin of the eyes; anterior margin and apex concave.

Thorax—*pronotum* and *scutellum* yellow. *Elytra* slightly longer than the abdomen, pale, almost transparent; nerves fine, white. *Legs* yellowish-white. *Tibiæ*: 2nd and 3rd pairs with pale spines. *Tarsi* whitish. *Claws* brown.

Abdomen: ♀, beneath, pale; next the posterior margin of the last segment with a small black spot on each side, in a line with the base of the ovipositor; genital segments pale, somewhat thickly clothed with long pale hairs.

Length, $1\frac{1}{4}$ line.

3. METRIUS, Flor.

The absence of markings on the head and other parts of this insect, as well as the form of the posterior margin of the last abdominal segment of the ♀, with the two black spots, sufficiently indicate its distinctness from all other British species.

Seemingly very scarce. I only possess a single example.

Smoky testaceous. *Crown* with a large, somewhat round black spot on each side in front of the anterior margin of the eyes.

Head—*crown* with a small black spot on each side of the apex, and two others larger and somewhat round in front of the anterior margin of the eyes. *Face* black, with four or five short, fine, transverse, yellowish-white lines on each side, becoming shorter as they descend; frons always broadly yellowish. *Clypeus* pitchy black, margins yellow. *Loræ* black, or with yellow margins.

Thorax—*pronotum* and *scutellum* dusky testaceous. *Elytra* longer than the abdomen, yellowish, semi-transparent, nerves fine, yellowish, of the same colour as the corium at the base; apical areas not margined with fuscous or black. *Legs* testaceous. *Thighs* more or less pitchy-black at the base. *Tibiæ*: 3rd pair black, base narrowly testaceous; spines testaceous. *Tarsi*: 3rd pair black.

Length, $1\frac{1}{2}$ line.

4. MACULICEPS, Boh.

Differs from all other British species by the two large black spots on the crown.

The only specimens I have seen were taken by the Rev. T. A. Marshall, at Wimbledon, in July.

Pale yellowish. *Elytra* as long as the abdomen; central apical area with a minute brown spot next the exterior margin.

Head—*crown* with a narrow brown streak along the anterior margin on each side of the apex, and two more or less distinct brown patches, one adjoining the anterior margin of the eyes, the other at the posterior margin; length down the centre about equal to the distance between the eyes on the posterior margin. *Face* more or less brown, with five to six transverse yellowish-white lines on each side, interior extremities somewhat knotted or comma-shaped. *Clypeus*, *cheeks*, and *loræ* yellow. *Antennæ* yellow; *setæ* brownish.

Thorax—*pronotum* dingy yellow. *Scutellum* yellow. *Elytra* pale yellowish, nerves yellowish-white; central apical area with a minute brown spot exteriorly. *Sternum* yellow. *Prosternum* in the middle, black. *Meso-* and *Metasternum* more or less blackish on the sides. *Legs* yellow. *Tibiæ*: 3rd pair at the base

on the inner edge, with a short, dark brown streak; apex narrowly brown. *Tarsi* yellow; 3rd pair, apex of the 1st and 2nd joints narrowly, and 3rd broadly, brown.

Abdomen: ♂, above, black; posterior margin of the segments very narrowly yellow, joined to a triangular patch of the same colour on the sides; connexivum yellow, margins of the segments very narrowly black; genital segments yellow; ♀, above, yellow, with a broad, black dorsal patch on three or four basal segments; beneath yellow; posterior margin of the last segment straight.

Length, $1\frac{1}{2}$ line.

5. FLAVIPENNIS, *n. sp.*

The characters on the head very much resemble those on *D. striatus*, and I believe it will prove to be an extreme variety of that species.

2. Apex of the elytra with a black or dark brown margin.

Dark green, bluish-green, or greenish-yellow.

Head: after death yellow. *Crown* with a very short, somewhat oblique, black or dark brown streak on each side of the apex or sometimes obsolete. *Face* black, or the upper half only black, with five to seven narrow, transverse yellowish-white lines on each side. *Clypeus* and *loræ* frequently narrowly margined with black or dark brown, and the former, sometimes, with a dark streak down the middle.

Thorax—*pronotum* and *scutellum*, after death, yellow. *Elytra* dark green, bluish-green, or greenish-yellow, opaque; exterior margin of the apical areas narrowly dark brown or black. *Legs* yellow. *Thighs*: 1st and 2nd pairs with two narrow black bands, one near the middle and the other before the apex, sometimes only indicated by spots, and sometimes obsolete; 3rd, with a black line along the upper margin at the apex, and generally a broad black streak along the upper and under-sides not reaching the apex. *Tibiæ*: 3rd pair broadly black down the inner margin, or frequently black with the base narrowly pale. *Tarsi*: 3rd pair black; base of the 1st joint orange. Length, $1\frac{3}{4}$ —2 lines.

6. ABDOMINALIS, Fab.

Easily recognised by the dark green colour of the elytra and the black or dark brown margin to the apical areas.

Not rare, by sweeping in damp places from June to end of August.

3. Apical areas faintly margined with fuscous.

Very pale green or greyish-green.

Head—*crown* pale yellow or sometimes brownish; length down the centre almost equal to the width across the anterior margin of the eyes; anterior sides slightly convex; apex acute, on each side of the latter a black spot or very short streak, frequently wanting. *Face* dark brown with a white or whitish central

longitudinal line, and on each side about six transverse lines similarly coloured, their inner extremities somewhat knotted or comma shaped. *Clypeus*, *cheeks*, and *loræ* yellowish or yellowish-white.

Thorax—*pronotum* and *scutellum* yellow or pale greenish-yellow. *Elytra* very pale green or greyish-green, almost transparent; ♂, slightly longer than the abdomen, ♀, barely as long; nerves pale greenish-yellow; apical areas sometimes very narrowly margined with fuscous. *Legs* as in *D. Mulsanti*, but sometimes the markings are more or less obliterated.

Abdomen: ♂, above, black; posterior margin of the last four segments and the side margins yellow; beneath, black; genital segments short, black or piceous; ♀, posterior margin of the last abdominal segment slightly concave.

Length, $1\frac{1}{2}$ line.

7. *ASSIMILIS*, Fall. (*nec* J. Sahlberg).

The different characters on the face, and the short black genital segments of the ♂ will at once show where this species varies from *D. Mulsanti*, to which it is nearly related.

It seems to be rather uncommon. It has been taken by Mr. Douglas and myself in the Isle of Wight, in July.

Pale greenish-yellow.

Head—*crown* pale yellow or brownish; length down the centre not so great as the width across the anterior margin of the eyes; apex scarcely acute; anterior sides slightly convex; on each side of the apex a short black streak, almost parallel with the centre. *Face* dark brown, with five to six fine, yellowish-white, transverse lines on each side, becoming shorter as they approach the apex. *Clypeus* yellow, with a broad dark brown streak down the centre. *Cheeks* not unfrequently brown, with the exterior and lower margin yellow; *loræ* yellow, margined with brown.

Thorax—*pronotum* and *scutellum* yellow or greenish-yellow. *Elytra* pale greenish-yellow; nerves yellow; apical areas more or less pale fuscous. *Legs* pale yellow with markings similar to those in *D. assimilis*.

Abdomen: ♂, above, black, with a slight bluish tinge; side margins broadly yellow, with a small black puncture in the centre on each segment; last segment yellow; genital segments yellow; beneath, black, genital segment yellow; valve black, narrowly margined with yellow; plates at the base, black; ♀, posterior margin of the last abdominal segment beneath with a narrow triangular notch in the centre, and the sides deeply concave.

Length, $1\frac{1}{4}$ — $1\frac{1}{2}$ line.

8. *MINKI*, Fieb. = *assimilis*, J. Sahlb.

Very like *D. assimilis*, but both sexes are easily distinguished from that species by the longer and differently coloured genital segments of the ♂, and the shape of the posterior margin of the last abdominal segment (underneath) of the ♀.

I have introduced this species as new to Britain, on specimens named for me by the late Dr. Fieber. Three examples of the above

were sent to Dr. J. Sahlberg for identification, who returned them with the name *D. assimilis*; but, on examination of the genitalia, I find they agree exactly with Fieber's figures of the insect now described. Under these circumstances, I have referred *D. assimilis*, Sahlb., to *D. Minki*, Fieb.

Pale yellowish or brownish-yellow. *Elytra*: anterior margin very pale yellowish-white.

Head—*crown* yellow; length down the centre about equal to the width across the anterior margin of the eyes; anterior sides slightly convex; apex with a very short, nearly straight black streak on each side, and sometimes another along the margin; occasionally both are obsolete. *Face* more or less dark brown, with a more or less distinct narrow pale longitudinal line, and on each side about seven transverse whitish lines, sloping off in a line with the upper margin of the loræ, inner extremities of two or three on the frons somewhat knotted or comma-shaped; intervening brown spaces broadest. *Cheeks* and *loræ* yellowish, or the former brown, with the exterior and lower margin yellow, and the latter narrowly margined with brown.

Thorax—*pronotum* and *scutellum* yellow. *Elytra* pale yellowish or greenish-yellow, semi-transparent, ♂ longer, ♀ as long as the abdomen; nerves fine, almost white; anterior margin very pale yellowish-white, broadest at the base; apical and apices of the adjoining ante-apical areas faintly brownish, sometimes with very narrow somewhat darker margins. *Legs* yellow. *Thighs*: 1st and 2nd pairs with or without the usual bands; 3rd with a black line along the upper margin at the apex; upper and under-side with a broad black longitudinal streak, not reaching the base or apex. *Tibiæ*: 3rd pair yellow, with a more or less broad black line inside next the inner margin; outer margin with black punctures, in which the pale spines are set. *Tarsi* yellow, or with a fuscous shade.

Length, $1\frac{1}{4}$ — $1\frac{1}{2}$ line.

9. PASCUELLUS, Fall.

In the form of the genitalia, very like *D. Minki*, the most perceptible difference being simply a deeper sinuation on the sides of the posterior margin of the last abdominal segment of the ♀ of that species. Another difference is in the total or almost total absence of the pale yellowish-white anterior margin of the elytra of the last named. As the extremes of variation constantly occur in this genus, it is possible that these two species are not really distinct.

Pale yellowish-white. *Elytra* pale, almost transparent; apex of the ante-apical area adjoining the inner apical one with a dark brown spot.

Head—*crown* pale yellowish-white, with a narrow black line in front on each side of the centre, sometimes interrupted or obsolete. *Face* brown, with a whitish central line, and about six transverse white lines on each side. *Cheeks* and *loræ* yellowish.

(To be continued).

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS
OF NEW SPECIES.

BY G. H. VERRALL.

(continued from page 198.)

The species of the genus *Chrysotus* are some of the most difficult to distinguish in the whole of the *Dolichopodidæ*. In my list of 1872, I only recognised four British species (*C. læsus*, *cupreus*, *gramineus*, and *neglectus*). I can now distinguish, with more or less certainty, ten species, chiefly by the help of a recent monograph of the European species by Kowarz, in Verh. zool.-bot. Ges. Wien, xxiv, 1874. He seems to find the species very difficult to group, and is obliged to form a separate table for each sex to distinguish the species. His material consisted of sixteen species, in all of which he knew the male, but in four of which he knew that sex only. His first division in the males comprises two species only, which have the femora almost entirely yellow; both of these occur in Britain; they are:—

CHRYSOTUS NEGLECTUS, Wied.

A species well distinguished in the male sex by its entirely yellow femora, large size, and black-haired front coxæ; the female is very variable in the colour of the legs, but may be distinguished from allied species by its rather larger size, black-haired front coxæ, yellowish hind trochanters, rather small third joint of the antennæ, and entirely yellow hind tibiæ; the femora vary from almost entirely yellow to almost entirely black. I have caught it at Footscray, Penzance, Upware, and near Southend, in June and July, but have never found it common.

C. CILIPES, Mg.

This species may be known in both sexes by its small size, bright green colour, yellow femora, the hind pair with black tips, and yellow-haired front coxæ. It is correctly recorded in Walker's *Insecta Britannica* as not rare; but, as I had never seen a specimen when I published my list, I omitted it. I have since caught it in great abundance in some marshy meadows at Beaulieu, in the New Forest, and at Upware, besides a few specimens in other localities.

From the fourteen species left with chiefly black femora, Kowarz separates two which have the hind trochanters yellow; I find, however, nearly all the species with the hind trochanters more or less brown or yellowish, but the one which I recognize of his group, has the hind trochanters and base of femora conspicuously yellow, which is never the case with the others.

C. PULCHELLUS, Kow.

A small species similar to *cilipes* and *gramineus*, but easily distinguished from *cilipes* by its black anterior femora, and from *gramineus* by the yellow base of the hind femora; its closest ally, *femoratus*, is larger, and has a smaller third joint to the antennæ; I cannot, however, as yet express myself thoroughly satisfied with the specific distinctions. I caught a pair apparently belonging to it at Rannoch, in June, 1870. The remaining twelve species known to him, Kowarz does not attempt to divide into groups; he first isolates

C. BLEPHAROSCELES, Kow.

A large dull coloured species, with unusually bristly front tibiæ, of which he only knows two male specimens. I am inclined, though with considerable doubt, to refer to this two pairs of an insect caught near Penzance, in July, 1871. He describes his species as dull green, the third joint of the antennæ small, eyes nearly (in mine, I think, quite) touching, palpi small, brown, at the tip shining-yellowish, wings pale brownish, darker towards the costa (in mine almost blackish tinged), alulæ reddish-yellow with blackish-brownish-yellow fringes (in mine whitish, with blackish edges and fringes), legs black, with the front tibiæ and tarsi reddish-brown (in my males, all blackish), front tibiæ, especially on the upper-side, more distinctly ciliated than usual, and besides the bristles near the base with a second strong bristle behind the middle, almost concealed by the ciliation, hind tibiæ including the metatarsus with conspicuous ciliation (the ciliation on the hind legs is moderate in one of my males, slight in the other); abdomen dark dull green, genitalia drawn in.

The abdomen in my specimens is strongly suggestive of the genus *Diaphorus*, as it is longer than usual in *Chrysotus*, and of the usual dark blue-green hue common in *Diaphorus*, and at its apex bears four or five short stubby bristles, easily overlooked, the genitalia also extend beneath for some distance in an irregularly concealed manner.

The females of my specimens are palish green, the *frons* pale green, the face narrow, greenish-white, scarcely occupying one-sixth the width of the head, the palpi small, blackish at the tips, shimmering white, alulæ as in male, white with blackish edges and fringes, the anterior tibiæ and base of tarsi yellowish, with only the usual bristles, though the cilia on the front tibiæ may be slightly more abundant and distinct than usual. The second female has the front tibiæ a little darkened at the tip, and the middle pair at the base.

. The chief points which make me hesitate as to the identity of my

specimens with Kowarz's species are the *alulæ*, and his silence concerning the peculiar termination of the abdomen, and, therefore, for the present the name must remain doubtful.

C. CUPREUS, Meq.

This species is distinguished from the rest by its front *coxæ*, which are whitish-yellow at the tip, and more or less so on the front. The British specimens are, I believe, always considerably smaller than the continental, but no other difference has been detected. I took the males once freely at Faygate, in Sussex, on May 25th, and have taken it in May and June at Denmark Hill, St. Mary Cray, and Windsor Forest.

C. PALUSTRIS, *n. sp.*

Obscure æneus vel cupreus, antennarum nigrarum articulo tertio majusculo, tegulis pallide ciliatis, femoribus nigris, coxis anticis albo-pilosis (Long. vix. 1 lin.).

♂. *Fronte argenteo-micante, facie angustâ, argenteâ, palpis flavis, ciliis oculorum inferis confertis albidis, pedibus nigris, genubus luteis.*

♀. *Obscure cupreus, palporum nigrorum apice pallescente, tibiis flavidis vel luteis.*

♂. Dull green, thorax slightly shining, eyes separated by a narrow silvery face, palpi yellow, cilia of the lower orbit rather abundant and conspicuous, white, frons more than one-third the width of the head, bluish-green rendered silvery by tomentum; antennæ with the third joint rather large, neither rounded nor pointed. Thorax green in the middle, coppery on the sides, rendered dull by minute tomentum, halteres orange, *alulæ* bright yellow with pale yellow fringes.

Legs greenish-black, with yellowish knees, front *coxæ* with conspicuous white pubescence, tibiæ very slightly bristly, usual bristle on middle pair and two or three bristles on hind pair; in one specimen, probably immature, the anterior tibiæ and base of tarsi are brownish. Wings rather dark, with more or less of a yellowish tinge.

♀. Rather larger, more coppery, thorax very dull, face dull white, about a quarter the width of the head, palpi rather large, whitish at the tip; front *coxæ* luteous at the extreme tip, and there with yellow hairs, on the disc with white hairs, femora slightly shining, tibiæ brownish or yellowish. Wings clearer than in male.

This species is evidently allied to *C. suavis*, Lw., but is darker and duller coloured, *suavis* being blue or violet; the face of *suavis* is green, and "mire angustâ," shining white near the antennæ, while in *palustris* it is all shining white, and not very narrow, in fact rather broad for this genus. *Suavis* has the legs and abdomen with a whitish pubescence, and yellow anterior tibiæ, while I expect all mature *palustris* have only the knees luteous. The female of *suavis* is greener, the face and frons dirty grey. *C. albibarbus*, Lw., is also blue or green, with but little tomentum, and no silvery shimmer on the frons.

On August 25th, 1875, I caught eleven specimens (three ♂ and eight ♀) of this species near Seaford, Sussex, in company with *Thinophilus versutus* and *Thrypticus bellus*, on a marshy spot.

C. GRAMINEUS, Fall.

This is the commonest species of the genus in England, and may be known by its bright blue or green colour, rather small size, small third joint of the antennæ, yellow anterior tibiæ and black hind tibiæ, pale fringed alulæ, and silvery white face, which is very narrow in the male. I believe it is universally distributed. It is rather variable, but I have in vain attempted to split off any species from it, until last autumn, when I came to the conclusion that the specimens from Upware, in the fens, represent some other species, probably—

C. MICROCERUS, Kow.

Distinguished from *gramineus* by its pale hind tibiæ, brown fringed alulæ, smaller third antennal joint, and in the female by the anterior femora being yellow for fully the last quarter. Kowarz says the antennæ usually have the two basal joints reddish, but I am unable to distinguish this character, which would at once settle all doubt, as *microcerus* is the only *Chrysotus* known which has not entirely black antennæ; perhaps more specimens will show that the antennæ are sometimes pale. I brought back one male and five females from Upware last July.

C. LÆSUS, Wied.

This is a well known species, being the only one with the eyes widely separated on the face in the male; it is of a dark blue colour, the third joint of the antennæ and the palpi large, the face broad, grey, and the legs in the male entirely black, which last two characters alone distinguish it from all the rest; the front coxæ are white haired, and the alulæ brownish haired; the tibiæ of the female are more or less pale. I have caught it sometimes in abundance near Lyndhurst, Reigate, Woking, &c.

C. AMPLICORNIS, Zett.

This is also a black-legged species, resembling *læsus*, but the eyes are approximate in the male, the front coxæ are black haired at the tip, the front tibiæ bear distinct bristles, and the tibiæ of the female are quite black, only just the knees being brownish-yellow. I have caught this in various parts of the New Forest.

(To be continued.)

DESCRIPTION OF THREE *HEMIPTERA* NEW TO THE BRITISH LIST.

BY EDWARD SAUNDERS, F.L.S.

MYRMEDOBIA TENELLA, Zett., Faun. Lapp., i, 475, 3.

♂ brownish-black. *Elytra* paler, their cuneus and lateral margins dark; *thorax* with a deeply impressed transverse line, its sides sinuate and dilated near the anterior angles, where they are also slightly reflexed; *corium* with its sides roughly rounded; *cuneus* reddish-brown; *membrane* dusky, paler below the apex of the cuneus. *Legs* and *antennæ* black, 2nd joint of the latter considerably longer than the 3rd.

♀ brown; the head, legs, and base of the *antennæ* more or less red. *Thorax* transverse, the anterior margin and sides nearly straight, base sinuate, disc with a deep transverse impression. *Elytra* rudimentary, very slightly longer than the scutellum, body round, moderately convex.

Length, ♂, 1 line; ♀, $\frac{4}{5}$ line.

Hab. Mickleham, Hampstead, Wicken Fen, Esher (*Dr. Power*). I have also taken it myself near Wandsworth.

Closely allied to *M. coleoptrata*, from which the ♂ may be distinguished by the shorter third joint of the *antennæ*, and the sinuate sides of the *thorax*, which are dilated and reflexed in front; the ♀ by the rudimentary *elytra*, which only extend to a little beyond the scutellum, instead of entirely covering the body as in *coleoptrata*.

ACOMPOCORIS, Reuter (*Temnostethus*, pars., D. and S.).

ACOMPOCORIS ALPINUS, Reut., Gen. Cimic. Eur., p. 63.

Head and *thorax* black, with a scattered golden pubescence. *Thorax* with the sides nearly straight, base widely sinuate; disc wrinkled and punctured posteriorly, with a slightly curved impression just behind the middle, between it and the less punctured anterior portion. *Scutellum* black, finely punctured, apex impressed. *Elytra* dark pitchy-brown, finely gold-pubescent. *Membrane* dusky, nerves and their margins paler. *Antennæ* black, 2nd joint pitchy-brown in the middle, and slightly clavate towards the apex, 3rd and 4th joints sub-equal.

Length, $1\frac{1}{2}$ line.

Hab. near Norwich, T. P. Dosssetor.

I have another British specimen without locality.

The more elongate form, darker colour, proportionately longer apical joint to the *antennæ*, the dark *membrane* with pale veins, &c.,

easily distinguish this from *pygmaeus* (*lucorum*, D. and S.). In general appearance it looks more like a narrow *Tetraphleps*, but the long antennæ and generic characters at once separate it from that genus. I believe I am right in referring this to Reuter's species.

NABIS POWERI, *sp. n.*

Elongate, sides of the body sub-parallel, pale ochreous. *Head* with a dull pale brown stripe on each side and in the centre, and with a brown Y-shaped mark at the base. *Thorax* elongate, sides nearly straight, with a central line and various small markings on the disc, brown; *scutellum* with a central line, brown; *elytra* very short, truncate, very slightly rounded at the corners. *Body* finely pubescent, very elongate in both sexes, ochreous, becoming reddish towards the margin, sides not foliaceous, with a black central line, and a brown line outside this on each side, but not quite touching it; *legs* ochreous, spotted with brown.

Length, 6 lines.

Hab. Chobham, Surrey.

Taken by sweeping in a marsh.

Allied to *N. limbatus*, but rather larger, and at once distinguishable by the sides of the body not being foliaceous, and in the ♀ being sub-parallel as in the ♂; whereas in *limbatus* the body of the ♀ is much widened, and with the sides rounded. The eyes are also less prominent and further apart; the rudimentary elytra are much less rounded at the apex, and the body is differently coloured. The hamus of the male genitalia is larger and differently shaped.

It is also allied to *N. lineatus*, Dahlb., a species unknown to me; but, according to Reuter's description, the present species appears to be distinct, especially in the narrow body of the ♀.

2, Spencer Park, Wandsworth:

10th February, 1876.

DESCRIPTIONS OF FOUR NEW SOUTH AMERICAN *HESPERIDÆ*.

BY W. C. HEWITSON, F.L.S.

ERYCIDES GAUDIALIS.

Upper-side: blue-black. The whole of the body rufous. Anterior wing with the base orange: crossed by three bands of transparent white spots: the first at the middle trifold, the second of two separate spots, the third near the apex continuous of five minute spots: a small white spot near the inner margin, and a sub-marginal series of four

pale blue spots. Posterior wing with the basal half covered with orange hair: the fringe broadly white, divided by the nervures, which are black.

Under-side: as above, except that it is altogether black, tinted with blue on the posterior wing. Posterior wing with three or four pale blue spots near the outer margin.

Exp. $1\frac{3}{10}$ inch.

Hab. Chiriqui (Ribbe).

In the collection of Dr. Staudinger. A beautiful species, most nearly allied to *E. Coritas*.

ERYCIDES TENEBRICOSA.

Upper-side: dark brown; the fringe white. The whole of the body, except the anus which is scarlet, black. Anterior wing slightly tinted with blue, the base of the costal margin rufous.

Under-side: olive-green, the nervures black: the base of the anterior-wing and the inner margin of the posterior wing dark brown.

Exp. 2 inches.

Hab. Peru (Chanchamayo, Thamm.).

In the collection of Dr. Staudinger. On the under-side of the wings, this species scarcely differs from some examples of *Pyrrhopyga Thasus*.

ERYCIDES TEUTAS.

Upper-side: black. The body black, except the neck, which is scarlet. Anterior wing tinted with green, marked near the costal margin before the middle by a trifid, triangular, transparent, white spot. Posterior wing with the fringe white.

Under-side: as above, except that the transparent spot of the anterior wing forms part of a band which is continued to the anal angle, and that the posterior wing is green.

Exp. $1\frac{9}{10}$ inch.

Hab. Amazons (St. Paulo).

In my own collection, from Mr. Bates. Does not differ in general appearance from *Pyrrhopyga Arinas* and *P. Hadora*.

PYRRHOPYGA AGENORIA.

Both sides dark red-brown: the fringe white, the whole of the body, with the exception of the neck which is carmine, dark brown. Posterior wing with the anal angle, which projects, carmine.

Exp. $1\frac{1}{5}$ inch. Hab. Peru (Chanchamayo, Thamm.).

In the collection of Dr. Staudinger. Nearest to *P. Passova* and *P. Gortyna*.

Oatlands, Weybridge: March, 1876.

Further notes on collecting in St. Helena.—I take the opportunity of a temporary calm on the line (when otherwise than a horizontal posture is practicable) to send a few notes—just to say that we have at last left St. Helena, and are now steaming up, at thirteen knots an hour, to Madeira.

We have had six months in the land of *Cossonidæ* (at least three longer than we originally intended), resulting, of course, in a perfect raid amongst its *very limited*, but, nevertheless, most peculiar and interesting fauna. I say “very limited” because all my efforts with net, hands, and sifter, have, I suspect, scarcely brought up my Coleopterous list to much above 200 species, and that too in spite of at least 10,000 specimens mounted, and already examined with some amount of care. The fact is, that, in that remote and weather-beaten little spot, whole families and departments, which are more or less represented almost everywhere, are entirely wanting; and you may use the sweeping-net over miles of grassy mountain-slopes (covered with a yellow kind of dandelion, much as one sees in North Wales) without finding a single flower-infester, or anything approaching to it. Your net, on examination, is simply empty. There seem to be no *Hydradephaga*, although there are plenty of small streams; no indigenous Longicorns (merely two imported species); no indigenous *Necrophaga* (as usually understood by that term); and very few *Heteromera* and *Brachelytra*. As I always anticipated (years ago), and over and over again stated would be the case, the *Rhynchophora* monopolize the lion’s share of the fauna, some half-a-dozen types being developed to so marvellous an extent as occasionally to exhibit forms that are well-nigh ludicrous. Nearly all these types circle round *Microxylobius* and *Stenoscelis* of the *Cossonidæ*, and *Notioxenus* of the *Anthribidæ*; and I strongly suspect that future calculations will bring to light the wonderful fact that *about a quarter of the entire Coleopterous fauna of the island are Cossonidæ!* This is pretty well, considering that in Great Britain, out of a fauna of, I suppose, more than 3000, the *Cossonidæ* number only eight or nine species, and one or two of even those may perhaps have been introduced. In St. Helena *all* of them (except possibly *one*) are, *par excellence*, aboriginal; so that I, who curiously enough happened to have made the *Cossonidæ* my particular friends, have certainly tumbled on my legs in this little oceanic preserve of the southern Atlantic. The worst of it is, in spite of all our exertions and constant work, I have absolutely not met with the *Microxylobius* type,—the insignificant *M. Westwoodi*, which has been unique and classical for now nearly fifty years in an English cabinet, having altogether escaped us! Still, having myself examined it formerly with great care, I see enough of its affinities to be almost sure of its *habitat*; and I have left directions with a young and rising entomologist in the island, which I hope will result in his turning it out at no distant time, and when the season for the “scrub-wood” (which is the local name for one of the most distinct of the indigenous arborescent *Compositæ*) again comes round.

The *Carabidæ* are represented by two species of *Calosoma*, the widely-spread *Pristonychus complanatus*, the great *Haplothorax Burchelli* (of which we were too late in the year to see more than the dead remains), and about eleven most remarkable and extremely indigenous *Bembidia*. The latter chiefly reside *within* the damp and rotten stems (at the highest elevations) of the tree-ferns!

The minute Anthribids, comprised (unless others should have to be established) in my genera *Notioxenus* and *Homæodera*, are almost as distinct, *inter se*, and curious, as the members of the *Cossonidæ*.

The material will give me plenty of work on our return, which I hope will be not later than early in June.

Mrs. Wollaston has not added greatly to her *Lepidoptera* during the last two months, for the island is both poor and rather commonplace in that order, and the heat was becoming too much for her before we left.

Madeira is comparatively so well known that I do not think I shall distress myself with work during our short sojourn there. Still, I have always points to be cleared up, and a few others (especial ones) to be attended to.

We have had no entomological news since we left home (in August last), the Magazine not having been forwarded from Teignmouth. Should be glad to have a sweep again in an English meadow.—T. V. WOLLASTON, On board the S. S. "American" (Lat. 0) : *February 26th*, 1876.

The Doubleday Collection.—The valuable collection of butterflies and moths belonging to, and collected by, the late Mr. Henry Doubleday, of Epping, has been now, by the wish of many collectors, and with consent of the Trustees, placed in the Bethnal Green Museum, to be called "The Doubleday Collection."

Habit of the larva of Hemerosia Rheediella.—About fifteen months ago, I received a rather startling piece of intelligence from Herr Mühlig, of Frankfort-on-the-Main, in reference to the larva of *Antispila Pfeifferella*, which he assured me, from repeated observations, had been found (at any rate in the Frankfort district) to feed, not like the larvæ of *A. Treitschkiella*, mining the leaves, but spinning up in the flowers of the dog-wood, *Cornus sanguinea*, and, when full-fed, boring into soft or rotten wood or bark, and remaining there unchanged from June to April.

To this, I replied that his news was very interesting, though scarcely credible, yet I knew he was a good observer, &c., &c.

Ten days ago I heard again from him, that after rearing, apparently, for four years in succession, *Antispila Pfeifferella* from the larva in the dog-wood flowers, he had at last been successful in rearing *Hemerosia Rheediella*. His plan had always been to leave the dog-wood blossoms and some soft wood for the hibernating larvæ in a flower pot exposed to the weather all the winter, and, to prevent things getting too dry, he had put a lot of dog-wood leaves in the flower-pot, hence the *Antispila Pfeifferella* had been unwittingly carried in to spoil the experiment, and the *Hemerosia Rheediella* had probably perished, causing the imagos of *Pfeifferella* to appear as the results of the larvæ in the *Cornus* blossoms. In the winter of 1874-5 he tried again, and this time without dog-wood leaves, and no *Pfeifferella* made their appearance.

Cornus sanguinea is, I believe, at any rate, a new food-plant for the larva of *Hemerosia Rheediella*. Probably, if it likes flowers of dog-wood, it may also like flowers of hawthorn, apple, &c. Herr Mühlig's note of its habits agrees with Wilkinson's remark (British Tortrices, p. 157): "we are credibly informed that it burrows into the bark to undergo its final change."—H. T. STANTON, Mountsfield, Lewisham, S.E. : *February 29th*, 1876.

Captures of Noctuidæ near Orillia, in the province of Ontario, Canada West.—

During the season of 1875, I collected *Noctuæ* near Orillia, in the province of Ontario. The locality where I resided was the Couchiching Hotel, a place of great beauty, situated on a wooded isthmus, dividing Lake Couchiching from Lake Simcoe. From the varied nature of the ground, enormous forest tracts, swamps, &c., I fully expected the locality would have been more productive in insects than my last year's place of sojourn, St. Catharine's, which was supplied with very little timber. In this I was much disappointed, possibly owing to the bad season, more than the locality: the season was an uncommonly cold one. This, combined with the high and cold winds which prevailed at night during the whole summer, was much against sugaring, and certainly rendered it one of the very worst collecting seasons I ever experienced.

I may here mention that Mr. F. Grant, who has resided at Orillia some years, has found *Agrotis fennica* not unfrequent on a species of *Spiræa*, visiting the flowers. He has also taken *Plusia striatella*, *D. Comstocki*, *Agrotis gilvipennis*, *Adit. Chimonanthi*, and other rare *Noctuæ*. In spite of the above-mentioned drawbacks, it will be seen the locality has not failed to yield several species new to science. These have been determined and described by Mr. Grote, of Buffalo, to whom my best thanks are due. The following species must be added to my list of St. Catharine captures: *Agrotis campestris*, n. sp., *Acronycta vinnula*, *Hadena badestriga*, *P. angulata*, *Noctua plecta*, *Phlogophora v-brunneum*, *Agrotis gladiaria*.

Raphia frater, 4th July, rare at light.

Diphthera Comstocki (Mr. Grant); *fallax*, 2nd July, not uncommon at sugar.

Acronycta occidentalis, 7th June, common at rest and sugar; *morula*, 7th July, not uncommon at sugar; *hasta*, 30th June, rare at sugar; *innotata*, 11th July, common at sugar; *hastulifera*, 15th July, rare at sugar; *noctivaga*, 15th June, common at sugar; *superans*, 11th July, at sugar, not uncommon.

Noctua sigmoides, 21st June, bred from larvæ, afterwards frequent at sugar; *haruspica*, 15th July, very common at sugar; *phyllophora*, 22nd July, rare at sugar; *baja*, 29th July, very common at sugar; *C-nigrum*, 24th June, bred from larvæ, frequent at sugar; *bicarnea*, 17th June, bred from larvæ, abundant at sugar; *badi-collis*, 4th August, not rare at rest; *rubifera*, n. sp., 24th July, very common at sugar; *conflua*, 10th August, rare at sugar; *Normaniana*, 11th August, common at sugar—much darker than St. Catharine specimens; *pecta*, 16th July, not common at sugar; *clandestina*, 27th June, bred from larvæ, common at sugar; *alternata*, 8th August, very common at sugar; *cupida*, 25th August, very common at sugar.

Agrotis tessellata, 11th July, very common at sugar and light; *messoria* (Cochrani), 2nd August, swarming at sugar and light; *herilis*, 11th August, not unfrequent at light and sugar; *tricosa*, 18th August, rare at sugar and light; *gularis*, n. sp., 12th August, not uncommon at flowers and light; *cinereo-macula*, n. sp., 19th July, not unfrequent over flowers; *turris*, n. sp., 20th August, not unfrequent at sugar and light; *friabilis*, n. sp., 4th August, rare at sugar; *versipellis*, n. sp., 20th June, not uncommon at light; *campestris*, n. sp., 5th August, not uncommon at light and sugar; *saucia*, 7th July, exceedingly common at sugar; *suffusa*, 12th August, exceedingly abundant at sugar; *venerabilis*, 9th September, rare at light.

Pachnobia orilliana, n. sp., 13th May, not unfrequent at palms.

Matuta Catharina, 10th May, not uncommon at palms and light.

Aplecta pressa, 5th July, common at rest and sugar; *occulta*, 16th August, not rare at sugar; *herbida*, 8th July, very common at sugar; *nimbosa*, 14th July, not uncommon at sugar; *imbrifera*, bred from larvæ, afterwards at sugar.

Mamestra vicina, 4th Aug., rare at rest; *atlantica* = *H. suasa*?, 21st June, rare at light; *albifusa*, 7th June, very uncommon at rest; *claviplena*, 2nd June, common at sugar; *olivacea*, 6th August, common at rest and sugar; *arctica*, 9th July, very abundant at light, rest, and sugar; *devastatrix*, 1st July, the most common moth at sugar, light, and rest.

Xylophasia apamiformis, 7th August, rare at light; *sputatrix*, 12th July, exceedingly common at sugar; *dubitans*, 19th July, rare at sugar.

Hadena sectilis, 28th June, not uncommon at sugar; *nactata*, 19th August, very abundant at sugar; *modica*, 14th August, not uncommon at sugar; *fractilinea*, 24th August, not uncommon at sugar.

Celæna chalcedonia, 14th June, not uncommon at sugar; *renigera*, July, very common at rest and light.

Dipterygia pinastræ, July, not unfrequent at rest and sugar.

Hyppax cylinoides, 12th June, very common at sugar and rest.

Cloantha ramosula, August, one specimen at light.

Callopietria mollissima, 12th August, rare, one specimen at sugar.

Phlogophora iris, 21st June, rare at light; *periculosa*, 21st July, not rare at sugar; *v-brunneum*, n. sp., 24th July, not rare at sugar; *anodonta*, 21st July, not uncommon at sugar.

Euplexia lucipara, 9th June, frequent at light and sugar.

Nephelodes violans, 31st August, very frequent at light, rest, and sugar.

Apamea reniformis, 12th August, very abundant at sugar; *atra*, n. sp.?, with the last, but not so common.

Hydræcia nictitans, 17th July, very common at sugar; *sera*, 15th July, common at sugar.

Arzama obliquata, 14th July, rare at light.

Leucania pallens, 16th July, rare at sugar; *unipuncta*, 21st June, very abundant at flowers and sugar; *pseudargyria*, 15th July, rare at sugar.

Laphygma frugiperda, 6th September, rare at sugar.

Caradrina miranda, 9th August, rare at sugar; *multifera*, 8th August, very abundant at light, rest, and sugar.

Amphipyra pyramidoides, 7th August, very abundant at sugar; *tragopogonis*, 8th August, common at sugar and rest.

Parastichtis gentilis, 25th July, rare at sugar; *perbellis*, 18th July, rare at sugar; *minuscule*, 9th September, rare at light.

Crocigrapha Normani, 17th May, not uncommon at palms.

Tæniocampa alia, 20th May, very rare at palms; *oviduca*, 9th June, very rare at light.

Orthodes infirma, 10th July, common at sugar; *cynica*, 18th July, common at sugar.

Cirrædia pampina, 24th August, abundant at sugar.

Orthosia infumata, 12th September, rare at sugar.

Xanthia ferruginoides, 29th August, very common at sugar; *silago*, not uncommon at rest and sugar.

Scopiopteryx libatrix, very common at sugar all the season.

Litholomia napæa, *n. g. et sp.*, 11th May, rare at palms.

Xylina petulca, 10th September, very abundant at sugar; *ferrealis*, 2nd September, common at sugar; *Bethunei*, 3rd September, swarming at sugar; *semiusta*, 18th May, at palms—September 9th, common at sugar; *Georgii*, *n. sp.*, 5th September, not uncommon at sugar; *disposita*, May, rare at palms—abundant at sugar in September; *cinerea*, May, rare at palms—15th September, occasionally at sugar; *lati-cinerea*, 15th September, rare at sugar; *oriunda*, 8th September, rare at sugar.

Anytus sculptus, 31st August, rare at sugar; *capax*, September 14th, rare at sugar.

Calocampa nupera, May, at fallows—11th September, common at sugar; *curvimacula*, May, at fallows—14th September, very common at sugar; *germana*, 5th September, very common at sugar.

Plusia æreoides, 7th August, not common at rest; *purpurigera*, 1st August, at thistle flowers; *bimaculata*, 28th August, rare at rest; *striatella* (Mr. Grant); *simplex*, 8th June, rare over flowers; *u-aureum*, 9th September, rare at light.

Heliothis exprimens, 2nd August, rare over flowers.

Galgula hepara, 9th September, rare at light.

Erastria carneola, 12th June, common at rest and sugar; *nigritula*, 9th July, not unfrequent at sugar.

Drasteria erichto, 2nd May, not common.

Parallelia bistriaria, 3rd July, not unfrequent at sugar.

Catocala relicta, 10th September, saw several at sugar; *unijuga*, 14th August, not common at sugar; *Briseis*, 31st July, common at sugar and rest; *parta*, 29th August, rare at sugar; *ultronia*, 27th August, common at sugar and rest; *concupens*, 11th August, not common at sugar; *ilia*, 13th August, rare at sugar; *antinymphe* (Mr. Grant); *cerogama*, 11th August, very common at sugar; *præclara*, 22nd August, not unfrequent at sugar; *fratercula*, 18th August, rare at sugar; *gracilis*, 11th August, rare at sugar.

Homoptera calycanthata, 28th May, common at sugar.

Pseudaglossa lubricalis, one of the most abundant moths at sugar throughout the season.

Epizeuxis americana, exceedingly common at sugar.

Xanclognatha levigata, July, rare; *ochreipennis*, July, not unfrequent at sugar.

Renia plenilinealis, 24th August, not unfrequent at sugar.

Bieptina caradrinalis, July, not common at sugar.

Bomolocha perangulalis, July, very abundant at sugar; *baltimoralis*, very frequent at sugar; *albicualis*, 20th July, common at rest and sugar; *bijugalis*, June, not unfrequent at sugar.

Hypena subrufalis, August, not unfrequent at sugar and rest; *evanidalis*, 13th August, not common at sugar.

Platyhyphenæ scabra, common at sugar.

Brephos infans (Mr. Grant), May, at birch trees.—GEO. NORMAN, Cluny Hill, Forres, N. B.

Notes on Acentropus.—At a meeting of the Netherland Entomological Society, held at Leyden on the 18th December last, Mr. Ritsema made the following observations on two points in the life-history of *Acentropus niveus*, Oliv., namely, the mode of pairing in the species in question, and the connection existing between the two forms of female (the rudimentary and the normally winged) and the different broods.

As regards the pairing, the female, according to an observation of Reutti, submerges herself during the act of pairing, and even draws the male under water with her. Although Mr. Ritsema had not actually witnessed the act, he considered himself justified in coming to the conclusion that this takes place not *in*, but *on*, the water. On the 1st June last, in the evening, he found two pairs of *A. niveus* had developed in his aquarium, the females with rudimentary wings. The aquarium was situated in the garden, and the wind that evening was so high that he found it impossible to keep the lantern, which he used on the occasion, alight for more than a few moments, so that he was afraid he should not be able to witness the copulation even should it take place, and, in fact, he only had time to observe the males hovering about the females which were floating on the surface of the water; in consequence of the storm increasing, Mr. Ritsema did not visit the aquarium again that night. On the following morning the males were, as usual, just above the surface of the water on the stems of some plants, the females being below the surface, on the leaves of *Potamogeton*, in close proximity to a number of eggs, which subsequently turned out to be impregnated eggs of *Acentropus*. Mr. Ritsema supposes from this, that the act of pairing takes place on the surface of the water, and that the female then dives down to lay her eggs on the leaves of the food-plant. Probably the pair observed by Reutti was, somehow or another, disturbed, and the female considered it advisable to dive down before the action of the male was completed.

In order to appreciate the connection which probably exists between the two forms of female and the different broods, it is necessary to pass in review a complete cycle of the development of the insect. A female with rudimentary wings appears at the end of May, and consequently belongs to a brood which may properly be called a spring brood. This female, after having paired, deposits her eggs; and, from a part of the larvæ produced from these eggs, imagoes are developed during the same summer: these form the second or autumn brood, the females of which, according to the example raised by Mr. Ritsema, appear to be furnished with only the rudiments of wings; the remaining larvæ hibernate. The imagoes of the second or autumn brood pair, the females lay their eggs, and from these larvæ are produced before the winter, which larvæ, consequently, hibernate at a very early stage of their existence, together with a part of the larvæ derived from the spring brood. An immediate consequence of the dissimilar age of the hibernating larvæ is that in the following year the descendants of the spring brood will develop into the imago state sooner (thus again forming the spring brood with rudimentarily-winged females) than the descendants of the autumn brood; and Mr. Ritsema supposes that from the last mentioned larvæ a generation appears about the middle of the summer, the females of which possess normally developed wings, so that he comes to this conclusion, namely, that the normally-winged females of *Acentropus* must belong to that generation (it might be called the summer brood) which is produced from the autumn

brood. Probably all the larvæ descended from the normally-winged females hibernate, and the imagos produced by these in the following year form a part of the spring brood.—(Translated by J. W. MAY from the "Verslag" of the Dutch Entomological Society, Meeting of 18th December, 1875).

Does Polia flavocincta ever hibernate in the imago state?—I suppose it is generally understood that all the three British species of *Polia* spend the winter in the egg state; and doubtless, in most cases, if not in all, it is so. How then is the following circumstance to be accounted for? Last winter I planted (to be in readiness for larvæ when required) a quantity of dock roots, in the corner of a yard at the back of my house. It is scarcely likely that any *flavocincta* were about the yard previously; and it is quite as doubtful if the species would occur on the spot from whence the dock roots were brought; yet in the early summer, when the roots had produced tall plants, I was surprised to find the leaves being eaten away by fine healthy larvæ of *flavocincta*! If the imago were known to hibernate, of course the reason would appear to be explained at once; but if it never does, how did the larvæ get on these plants? I may add, *flavocincta* was very abundant in the larval state throughout this district last summer, even on the docks on the roadside just outside the town; they did considerable damage in gardens also.—GEO. T. PORRITT, Huddersfield: February 4th, 1876.

ENTOMOLOGICAL SOCIETY OF LONDON: 1st March, 1876.—Professor WESTWOOD, President, in the Chair.

Dr. G. Kraatz, President of the Entomological Society of Berlin, and Mr. Clemens Müller, of Berlin, were elected Foreign Members; and Mr. O. E. Janson, hitherto a Subscriber, was elected an Ordinary Member.

Mr. Jenner Weir exhibited two grasshoppers in an apterous state, taken by himself in the Rhone Valley, *in copula*, a peculiarity which has been frequently noticed among the *Hemiptera*. He also exhibited a remarkable moth from Madagascar, belonging to the family *Uraniidæ*, bearing a very striking resemblance to a *Papilio*, except that it had the antennæ of a moth and the hind wings were destitute of tails.

Mr. E. Y. Western exhibited some *Coleoptera* taken chiefly in Switzerland.

Mr. W. Arnold Lewis exhibited a specimen of *Argynnis Dia* taken in England by Mr. Wallace A. Smith, whom he introduced to the Meeting. Mr. Smith stated, in answer to several enquiries by the President, that he captured the specimen himself in the year 1872, while sunning itself on some palings near his own house at Worcester Park, Surrey; and it was on an exceedingly hot day, though he did not remember the month. He had only commenced collecting insects in the preceding summer, and it was the first fritillary he had ever had in his possession, and the specimen had never been out of his possession since. He was unable to identify the species at the time, and was not aware of the rarity of the insect until he shewed it to Mr. Lewis. The specimen was handed to the Members and pronounced to be undoubtedly an *Argynnis Dia*. Mr. Lewis remarked that he had seen so many attacks in past publications on those who asserted that *Dia* was a British species, that he was desirous that the testimony connected with the present capture should be recorded.

The President noticed a paragraph in Newman's Entomologist stating that the collection of Butterflies and Moths formed by the late Mr. Henry Doubleday was now being exhibited at the Bethnal Green Museum; and he hoped that special care would be taken of it.

Mr. Dunning exhibited a pair of *Caradrina morpheus* taken *in copula* in the Regent's Park, the male being dead; and although still attached to the female, several eggs were laid, and larvæ hatched therefrom, in the box in which they were placed.

Mr. Bates read a letter from Mr. Trove Blackmore to Mr. McLachlan (who was absent), stating that he was much interested in observing a notice in the Proceedings of this Society respecting the habits of *Cychnus cylindricollis*, reported by M. Baudi to feed on snails. He had called attention (in the Ent. M. Mag., xi, 214) to the fact that *Carabus stenocephalus*, Fairm., fed on snails, which, in Morocco, were so very abundant as to form a marked feature in the landscape by covering the bushes so thickly as to resemble, at a distance, clusters of blossom. He had captured in all eighteen specimens of this scarce *Carabus*, and of these fifteen were obtained either feeding on snails or climbing up bushes of *Retama*, which were covered with snails, especially with *Helix planata*. The *Carabus* having an unusually long head, and the prothorax being narrowed anteriorly, enabled it to thrust its head and prothorax a considerable distance within the shell in search of its food. It belongs to a group comprising several species found in North Africa, which much resembles *Cychnus* in appearance, and which possessed characters sufficiently marked to entitle them to form, if not a genus distinct from *Carabus*, at least a sub-genus of *Carabus*. One of them (possibly a var. of *C. stenocephalus*) occurred in the more northern parts of the Atlantic coast of Morocco, and had been named, by Fairmaire, *C. cychnocephalus*; and another species (*C. Aumonti*, Lucas) had been found at Oran, and in the Angera Mountains, near Ceuta, which had a far narrower prothorax; but, as he had not met with it himself, he was unacquainted with its habits. He believed that other *Carabi* might be found whose habits were similar to those of *C. stenocephalus*. Mr. Bates added that this was a remarkable instance of modification of a form in order to adapt it to a different habit. It could not be a case of affinity, for *Carabus* and *Cychnus* were totally distinct genera. The President considered that the form was simply adapted to the purpose for which the insects were created.

The President drew attention to a subject now being much discussed in Germany and the United States of America, with reference to the spring and autumn broods of *Lepidoptera*, which proved to be modifications of the same species. He was much interested in the subject, and would be greatly obliged to any Entomologist who would furnish him with observations and notes as to the different broods.

The President read a paper entitled "A Dipterological Note from Pompeii," containing remarks on the habits of the genus *Bombylius*; also descriptions of some new species of *Tipulidæ* in the British Museum, accompanied by drawings shewing them to be furnished with hind legs of unusual length.

Mr. John Scott contributed a monograph of the British species belonging to the *Hemiptera-Homoptera* (family *Psyllidæ*), together with a description of a genus which might be expected to occur in Britain.

MONOGRAPH UPON THE BRITISH SPECIES OF *SARCOPHAGA*, OR FLESH-FLY.

BY R. H. MEADE.

(Continued from page 220).

2. *ALBICEPS*, Meig.? Macq.?

Grey, marked and tessellated with blue-black. Face pure white. Middle tibiae shortly and evenly ciliated. Both anal segments of ♂ black. Three dorsal thoracic bristles behind the suture.

Length 4—5 lines.

This species differs from *S. carnaria*, in being usually smaller, and of a more oval form; the colour is bluer; the face silvery-white, and less prominent; the stripes upon the thorax are wider, and less distinct; the thoracic bristles differ in number, there being only three behind the suture, and two in front of it; all of which are much longer and stronger, and of more even size, than those in *S. carnaria*, see Fig. 2.* The costal spine is usually more distinct; the beard upon the posterior tibiae less thick; and the middle tibiae are only clothed with short hairs, of an even length, along the whole surface. The ♀ is very similar to the ♂, with the exception of the usual sexual differences.

This species is not common: I have one ♂ in my own collection, and there are one ♂ and one ♀ in that of Mr. Verrall, one of which was captured at Lewes, Sussex, and the other at Lyndhurst, Hants.†

I have called this species *albiceps*, as in colour and general characters it resembles the one so named by Meigen; but the description of his species is so imperfect, that it is impossible to identify it with certainty.

3. *ATROPOS*, Meig., Macq., Zett., Schin.

Grey, striped and tessellated with black. Three posterior dorsal thoracic bristles. First anal segment in ♂ grey, often marked with lines or spots.

Length, 3—4 lines.

This well-marked species closely resembles the smaller specimens of *S. carnaria*, both in general form, colour, and markings; but it differs from them essentially, in having only three bristles in the posterior part of the dorsal thoracic row, and two in the anterior part, which in size and arrangement resemble those of *S. albiceps*. It also differs from both the preceding species by the colour of the first anal segment of the ♂, which, instead of being shining black, is pale grey, marked by a transverse and sometimes a vertical dark line, and in some specimens with two lateral small dots. This design upon the anal joint is frequently partial or indistinct, and often altogether wanting; the segment being of a plain grey colour. The legs are armed and ciliated as in small varieties of *S. carnaria*, there being a short beard upon the middle tibiae of ♂. The ♀ is not known.

* Though this figure is intended to represent *S. melanura*, the thoracic part will equally apply to both.—R. H. M.

† I beg to express my thanks to Mr. Verrall for his kindness in placing his large and valuable collection of *Sarcophagidae* at my service.—R. H. M.

This species is not common, but seems to be generally distributed in England and Scotland.

4. SIMILIS, *n. s.*

Colour and markings as in *S. carnaria*. Thorax with four posterior dorsal bristles. Second abdominal segment destitute of central spines upon the edge. Length, 4—7½ lines.

This species only differs from *S. carnaria* in one essential point, viz., by the central portion of the edge of the second abdominal segment being unarmed with spines. The bristles in the dorsal thoracic rows are similar in number, size, and arrangement to those in species 1. The specimens vary in size greatly, as in that species; and the legs are ciliated in the same manner, many of the large specimens having quite a long beard upon the middle tibiae of the ♂, when they correspond to the *S. matertera* of Rondani. The ♀ resembles the ♂, except in the hairiness of the legs, and in the width of the frontal space.

Generally distributed, but much less common than *S. carnaria*.

5. MELANURA, Meig., Macq., Zett., Walk., Rond.

Yellowish-grey, striped and tessellated with brownish-black. Frontal space wide. Thorax with three posterior dorsal bristles. Second abdominal segment without central spines. First anal segment in ♂ black, and extruded. Costal spine of wings distinct.

Length 4—5 lines.

Head: forehead rather less prominent than in *S. carnaria*. Frontal space equal in width in ♂ to one-third of the head, and equal to nearly half in ♀.

Thorax: three posterior and two anterior dorsal bristles, as in *S. albiceps*.

Abdomen without central spines upon the edge of the second segment. Both the anal segments in ♂ shining black, the first extruded. *Wings* mostly with a distinct costal spine. *Legs* with middle tibiae of ♂ shortly ciliated. In general colour and design similar to *S. carnaria*, but the black is usually of a more rusty tint, and the white and grey spots on abdomen are sometimes of an olive tint.

The ♀ resembles the ♂.

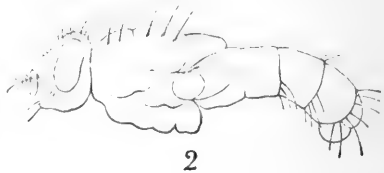
This well-marked species is generally distributed.

6. AGRICOLA, Meig.?, Macq.?, Zett., Rond.

Yellowish-grey, striped, and tessellated in black, in the ordinary manner. Buccal setae a little enlarged. First anal segment of ♂ grey, and mostly retracted. Posterior tibiae of ♂ thinly bearded.

Length, 3—4 lines.

This species resembles *S. melanura* in the number of thoracic dorsal bristles, and by the absence of central spines upon the second abdominal segment; but it differs in having the frontal space narrower (it not occupying more than one-fourth of the width of the head in



the ♂), it is also usually smaller, and more slender in shape, has the first anal segment of the ♂ retracted and grey in colour, and the posterior tibiæ of the ♂ less thickly bearded. The buccal setæ in *S. Agricola* are usually considerably larger than in *S. carnaria* and all the preceding species. There is a great likeness between this species and *S. Atropos*, but it may at once be distinguished from the latter by the absence of the two central spines upon the edge of the second abdominal segment.

Not uncommon.

7. LATICORNIS, Meig., Rond.

Bluish-grey, marked with black stripes and spots. Third joint of antennæ rather broad. Arista bare. Vibrissæ numerous and large. Two central spines on the second abdominal segment.

Length, 4 lines.

Head: forehead prominent. Face white, with blue reflections. Frontal space occupying about one-fourth of the width of the head in the ♂. Edges of the facial groove setigerous. Third joint of antennæ wide. Arista thickened at the base, and almost bare. Peristome with numerous and large vibrissæ.

Thorax rather indistinctly striped. Dorsal bristles large, three placed behind the suture.

Abdomen with two strong central spines upon the edge of the second segment, and with the third as well as the fourth segment fringed with numerous strong spines. The dorsum is marked by an interrupted black stripe down the centre, and the posterior margin of each segment is marked upon each side by a semi-circular black spot. The ordinary tesellations or reflections are less distinct than in most of the preceding species. *Wings* tinged with brown. *Legs* furnished with strong spines, but with no beard upon the tibiæ of the ♂.

♀ very similar to the ♂, but with a wider frontal space.

This is a well-marked but aberrant species, bearing a strong resemblance to some of the *Tuchinidæ*, the arista being thickened and without hairs, and the facial groove setigerous. Not rare.

8. NIGRIVENTRIS, Meig., Rond.

Grey, striped and tessellated in the ordinary manner. Frontal space wide. Buccal setæ large, style thickened, and with short hairs. Ventral surface of abdomen mostly black. Length, 2—3 lines.

Head: frontal space occupying about one-third of the width of the head in ♂. Buccal setæ large. Third joint of antennæ rather large, but of the ordinary form. Arista thickened at the base, and furnished with short hairs.

Thorax with three posterior dorsal bristles.

Abdomen with two central spines upon the edge of the second segment. Ventral surface sometimes black, but often grey. *Wings* with a distinct costal spine. *Legs* without beard upon the posterior tibiæ of the ♂.

♀ similar to the ♂, but usually larger in size. Frontal space wider.

This species resembles *S. agricola* in having the bristles upon the cheeks enlarged; but it differs in being smaller, and in having the posterior tibiæ of the ♂ bare. Not common.

9. JUVENIS, Rond.

Grey, striped and tessellated in the ordinary manner. Style with long hairs. Costal spine large. Posterior tibiae of ♂ ciliated, with a few long hairs on their inner sides. Length, 3 lines.

Head: frontal space in breadth about one-fourth of the width of the head. Buccal setae small, arista with long hairs.

Thorax with three posterior dorsal bristles.

Abdomen with two central spines on second segment. Anal segments of ♂ both shining black. *Wings* with a long costal spine. Fifth longitudinal vein bent at an obtuse angle.

Legs: posterior tibiae furnished on their inner sides with a few long hairs.

I have seen but one ♂ of this rare species, which is in Mr. Verrall's collection.

10. CLATHRATA, Meig., Rond.

Blue-grey. Abdomen marked with three longitudinal black lines. Frontal space narrow. Hind tibiae of ♂ with a few longish hairs. Length, $2\frac{1}{2}$ lines.

Head: breadth of frontal space not more than one-sixth of the width of the head. Style with moderately long hairs.

Thorax rather indistinctly striped. Three dorsal bristles behind the suture.

Abdomen with the second segment armed with two spines in the centre. First segment black, the three others pale grey, marked with three continuous longitudinal black lines, which are expanded but not broken at the posterior edges of the segments, so as to give somewhat the appearance of a series of connected triangular spots. First anal segment of ♂ grey, second black. *Legs*: posterior tibiae of ♂ with a few straggling longish hairs on their inner sides.

♀ said to resemble the ♂.

This small species bears a very close resemblance to *S. dissimilis* (No. 14), but may at once be distinguished from it by the absence of teeth upon the second longitudinal vein of the wings. Rare. I have one ♂ in my own collection.

11. ADOLESCENS, Rond.

Grey. Thorax and abdomen marked in the ordinary manner. Second abdominal segment without central spines. Posterior tibiae of ♂ thickly clothed with soft short hairs. Length, 3 lines.

Head: frontal space about one-fourth of the width of the head.

Thorax with three posterior dorsal bristles.

Abdomen tessellated in the ordinary manner, and without central spines upon the edge of the second segment. *Wings* with costal spine small. *Legs* with the posterior tibiae of ♂ lined along the lower two-thirds of their inner surfaces with short soft hairs.

♀ unknown.

Rare. There is one ♂ in Mr. Verrall's collection, taken at Folkestone.

12. *AFFINIS*, Fall., Meig., Macq., Zett.

Whitish-grey, with black lines and spots. Frontal space narrow. Abdomen marked by a single longitudinal line, and with black spots on the posterior margins of the segments. Length, $3\frac{1}{2}$ —4 lines.

Heads: eyes of ♂ near together, being separated by a very narrow frontal space, which is often of a reddish-brown colour. Style with rather short hairs.

Thorax striped in the ordinary manner, and with three posterior dorsal bristles.

Abdomen without central spines on second segment. First segment black, second, third and fourth grey, marked with a central black longitudinal line, rather irregular in width, and sometimes interrupted at the sutures, and with six large, black, somewhat triangular shaped spots, one of which is placed at the side of the posterior margin of each segment. Anal segments of ♂ small and grey in colour. *Wings* with no costal spine. Internal transverse vein nearly opposite the end of the second longitudinal, which extends considerably beyond it in most species. *Legs* with posterior tibiae of ♂ bare.

♀ similar to ♂, but with the frontal space as wide as one-fourth of the head.

Not rare.

13. *SETIPENNIS*, Rond.

Yellowish-grey, striped and tessellated in the ordinary manner. Second as well as fourth longitudinal vein of wings armed with teeth. Costal spine large. Second abdominal segment with central spines.

Length, 3— $3\frac{1}{2}$ lines.

Head: frontal space of ♀ as wide as one-third of the head. Style with long hairs, bristles upon the cheeks a little enlarged.

Thorax with three dorsal bristles behind the suture.

Abdomen with two central spines upon the edge of the second segment. Tessellated in the ordinary manner. *Wings*: second longitudinal vein armed with teeth along nearly its whole length. Fourth vein with teeth at the base as in all other species. Costal spine large.

Rare. I have not seen a ♂ of this species, and only three ♀, one of which is in Mr. Verrall's collection, taken at Ranscombe, one is in my own collection, and I received one from the late Mr. F. Walker.

14. *DISSIMILIS*, Meig., Schin.

Grey. Abdomen of ♂ marked with three longitudinal black lines. Abdomen of ♀ shining black, with small white spots upon the sides. Frontal space narrow. Wings tinged with brown, and with the second longitudinal vein dentigerous. Posterior tibiae of ♂ with a few long scattered hairs.

Length, 2—3 lines.

Head: frontal space occupying about one-sixth of the width of the head in ♂, and one-fourth in the ♀. Bristles of cheeks of ordinary size.

Thorax marked in the usual manner, and having three posterior dorsal spines.

Abdomen narrow in ♂, with two central spines upon second segment. First segment shining black, the three following ones grey, marked with three longitudinal black lines, formed by a series of triangles, the bases of which are placed backwards. Anal segments

both shining and black. In ♀ all the segments are shining black, but have a small white spot on the lateral edge of each, which is only visible in certain lights. *Wings* with a smoky tinge, which is especially marked along the anterior border. Costal spine large. Second longitudinal vein armed with minute teeth along its anterior half. Fourth with the teeth extending as far as the internal transverse vein. *Legs* with a few scattered long hairs on the inner sides of the posterior tibiae of ♂.

Not rare. I captured several ♂ of this pretty little fly at Tingewick, near Buckingham, on 2nd August, 1873, but did not see a single ♀. On the 17th September in the following year, I took four ♀ in the same locality, but found no ♂.

15. INFANTULA, Rond.

Grey. ♂ striped and marked as in *S. dissimilis*. Frontal space wide. Posterior tibiae of ♂ with inner sides bare. Second longitudinal vein denticerous. Length, 2 lines.

Head: frontal space nearly equal to one-third of the width of the head in ♂.

Thorax striped in the ordinary manner, and having three posterior dorsal bristles.

Abdomen having the second segment armed with two long erect central spines. Form and design much as in *S. dissimilis*, but with the lateral rows of triangular spots less distinctly formed. *Wings* armed as in *S. dissimilis*, but less tinged with brown. *Legs* without any long hairs upon the inner sides of the tibiae of ♂.

♀ unknown.

Rare. There is one specimen in Mr. Verrall's collection, captured at Reigate, Surrey.

16. HÆMORRHODALIS, Zett., Rond.

Grey. Marked and tessellated as in *S. carnaria*. Four thoracic bristles behind the suture. Abdomen with two central spines upon the edge of the second segment. First anal segment of ♂ shining black, second red. Costal spine of wings distinct. Second longitudinal vein without teeth. Beard upon the posterior tibiae of ♂ thin and short. Length, $4\frac{1}{2}$ —5 lines.

This species closely resembles *S. carnaria* in all points except the following. It never attains to the size of some specimens of the latter; the terminal segment of the abdomen is red; the costal spine is larger; and the posterior tibiae of the ♂ are more thinly and shortly bearded, the hairs only extending a short way up the leg.

The ♀ closely resembles that of *carnaria*, but has the tip of the abdomen red.

Rare. I received a ♂ of this species from the late Mr. F. Walker, and captured one ♀ at Bowdon, Cheshire, in June, 1875.

I have not mentioned the names of either Fallén, Meigen, Macquart, Walker, or Schiner, in the synonyms of this species, for their descriptions of *S. hæmorrhoidalis* either apply to the next species, or are so imperfect, that it is impossible to say to what species they refer.

17. *NURUS*, Rond.*hæmorrhoidalis*, Schin., Meig.[?], Macq.[?].

Grey, marked and tessellated as in the preceding species. Thorax with only two dorsal bristles behind the suture. Second abdominal segment without central spines. First anal segment of ♂ grey, second red. No costal spine to wings. Fifth longitudinal vein bent at an acute angle. Posterior tibiæ of ♂ with a thick beard.

Length, 5—6 lines.

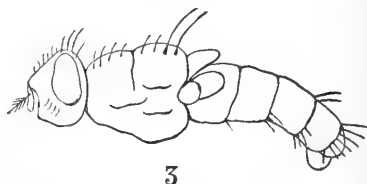
Head: face pale golden-yellow or grey. Frontal space occupying one-fourth of the width of the head. A distinct black or brown stripe runs down the middle of this space, which stripe is wider than the interval that separates it on each side from the eye.

Thorax with only two large bristles in the dorsal row, both of which are at the posterior part behind the suture, all the others, both before and behind the transverse suture, are very small or almost obsolete (see figure 3).

Abdomen without spines in the centre of second segment. First anal joint of ♂ extruded and grey, second red. *Wings* without costal spine. Fifth longitudinal vein bent at an acute or sub-acute angle. *Legs* with posterior tibiæ of ♂ thickly, but not longly, bearded.

♀ similar to ♂, except in the usual sexual differences.

Common.

18. *CRUENTATA*, Meig., Rond.

Whitish-grey, striped and tessellated in the ordinary way. Frontal stripe equal in width to the space between it and the eye on each side. Fifth longitudinal vein bent at an obtuse or right angle. First anal segment of ♂ retracted.

Length, $3\frac{1}{2}$ — $4\frac{1}{2}$ lines.

Head: face silvery-white. Frontal space rather wider than in *S. nurus*, with a dark red or black stripe running down the centre, which is equal in width to the interval on each side between it and the eye, which is of a whitish colour.

Thorax with dorsal line of thoracic bristles as in *S. nurus*.

Abdomen without central spines on second segment. Anal segments of ♂ smaller in proportion than in *S. nurus*, the first retracted and grey, the second red. *Wings* with the fifth longitudinal vein bent at a more obtuse angle than in *S. nurus*. *Legs* bearded as in *S. nurus*.

♀ similar to ♂, only frontal space wider.

Rare. Mr. Verrall's collection contains two ♂ and two ♀, all of which were bred from pupæ found in pigeon's dung, at Croydon, Surrey, in which were the remains of dead pigeons.

19. *HÆMATODES*, Meig., Macq., Zett., Schin., Rond.

Yellowish-grey, striped and spotted with brownish-black. Frontal

space wide. Thorax with three posterior dorsal bristles. Posterior tibiae of ♂ bare. Length, 3 lines.

Head: width of frontal space in ♂ rather more than a fourth of the breadth of the head. Central stripe black, and rather more than double the width of the whitish-coloured interval between it and the eye on each side.

Thorax striped in the usual manner, and armed with five large dorsal bristles, two in front and three behind the transverse suture, as in *S. melanura* (figure 2).

Abdomen without central spines upon the edge of the second segment. Dorsum marked by a longitudinal central stripe, formed by three elongated triangular black spots. Sides tessellated with irregularly-shaped black spots. First anal segment of ♂ pale grey, second light red. Terminal segments of ♀ reddish-brown. *Wings* without costal spine. *Legs* with posterior tibiae of ♂ smooth.

Rare. Two ♂ and one ♀ of this species are in Mr. Verrall's collection, all captured at Penzance.

20. *HEMORRHOA*, Meig., Zett., Schin., Rond.
vulnerata, Schin.

Yellowish or whitish-grey, striped and tessellated with black. Frontal space narrow. Second and fourth longitudinal veins of wings setigerous. Second abdominal segment with two central spines. First anal segment of ♂ black, with a grey spot, second red.

Length, 3—4 lines.

Head: frontal space of ♂ not more than one-sixth of the width of the head in breadth, and entirely black. In ♀ the space is nearly twice as wide.

Thorax marked and armed as in *S. haematodes*.

Abdomen with second segment armed with central dorsal spines upon its posterior edge. Colour pale grey, tessellated with three longitudinal rows of black irregularly-shaped confluent spots. First anal segment of ♂ black, marked with a grey patch, second dull red. Terminal segment of ♀ pale yellowish-red. *Wings* with base tinged with brown. Costal spine small, but generally distinct. Second as well as fourth longitudinal veins setigerous. Fifth longitudinal vein bent at a right or obtuse angle. *Legs* with the posterior tibiae of ♂ either bare, or ciliated with a few longish hairs, when it constitutes the species *vulnerata* of Schiner.

Not rare.

In conclusion, I may remark, that while investigating the minute differences which separate the species of this genus from each other, the question will arise, are these differences in structure sufficient, in many cases, to separate these flies from each other as specifically distinct, or are they only varieties of one or two types? I can only say in answer, that the characters upon which the foregoing species are founded, will be found to be mostly constant and fixed, and that one distinctive point of difference is almost always accompanied by some other. The only species about which I have any doubt, is No. 4,

which I have named *similis*, from the close resemblance which it bears to *S. carnaria*, differing from it only by the want of the dorsal spines upon the edge of the second abdominal segment. In female specimens of *S. carnaria*, these spines are sometimes small and absent; and in a few males I have found them much less than usual: it must therefore remain to be determined by future investigations whether *S. similis* is to be ranked as a true species, or only a variety of *S. carnaria*.

Bradford, Yorkshire:

November, 1875.

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS
OF NEW SPECIES.

BY G. H. VERRALL.

(concluded from page 248.)

TEUCHOPHORUS SPINIGERELLUS, Zett.

This species seems rare, but I have caught it at Lyndhurst, Darenth, Upware, Reigate, &c.

T. PECTINIFER, Kow., Verh. zool.-bot. Ges. Wien, xviii, p. 218 (1868).

The species recorded in my list as *calcaratus*, I believe to be *pectinifer*: I only caught the specimens after the list was in type, and did not sufficiently study the distinctive characters. I consider *calcaratus* sure to occur in Britain. *Pectinifer* is well distinguished in the male sex by its legs, the hind tibiæ being rather stout, with a peculiar tuft of bristles inside, about the middle; the front tarsi are slightly bristly beneath the basal joint, and the middle femora bear about four conspicuous bristles beneath near the base. The alulæ in my specimens seem pale-haired. I caught this species near Three Bridges on July 28th, 1872, in a small wood, about little pools of water in the paths, in such abundance, that I often had forty or fifty specimens in my net at once. It was previously only recorded from Austria.

SYMPYCNUM CIRRHIPES, Hal.

I caught one male at Braemar on July 22nd.

S. NIGRITIBIALIS, Zett.

This is about the size of *S. annulipes*, but is easily distinguished by its black hind tibiæ; the face is narrower and whiter, the antennæ

rather shorter and less pointed, the front coxæ paler, the front femora not darkened near the base, the front tibiæ without a row of black spines down the inside, the abdomen thinner and blacker, the genitalia less retracted; the third and fourth joints of the hind tarsi bear some very short erect bristles beneath, about five on each joint, but bear no long hairs; the alulæ are pale haired. The female is smaller than that of *S. annulipes*, and is easily known by its yellow front coxæ and femora, black hind tibiæ, pale-haired alulæ, and narrower face. It is the *Dolichopus nigritibialis* of Zetterstedt's Dipt. Skan. xii, p. 4638. Only one male has been recorded from Celand. I caught two pairs on Scotsdon Moor, near Aberdeen, on the 18th July, 1874, and one pair at Braemar three days later.

S. BIFASCIELLUS, Zett.

This species seems to occur over north-west Europe, in single examples. I caught one male at Upware on July 10th, last year. It is a very small species, the third joint of the antennæ being long, pointed, and pubescent, the face is narrow, silvery, the frons shining blue, silvery about the edges; the thorax shining green; the legs and coxæ all pale yellow, except the end of the tarsi, the basal joint of the hind tarsi shorter than the second; third and fourth joints not bristly nor hairy. The abdomen is blackish, a yellow band occupying most of the first and second segments, the genitalia are rather protruded. The discoidal vein ends *in* the tip of the wing.

CAMPSICNEMUS LORIPES, Hal. (not *Full.*, as in my list).

An almost black-legged variety of this occurs at Aberlady.

C. PUSILLUS, Mg.

One male near Lyndhurst.

LIANCALUS LACUSTRIS, Scop.

Near Fawley, last June.

HYDROPHORUS PRECOX, Lehm., Gerst. (= *H. inæqualipes*, Lw.).

This species, although omitted from my list and from Walker's *Insecta Britannica*, is perhaps one of the commonest British species. It has the wings unspotted, the face and frons all glossy white, the abdomen white haired, greenish-grey, the front femora with spines of equal length, reaching to the tip, and the front tibiæ with about fourteen moderately long spines on the inside, of which the last is longer

than the rest, especially in the male. I have caught it abundantly at Beaulieu, Seaford, and near Lewes.

ACHALCUS FLAVICOLLIS, Mg.

I caught two males of this rare species at Three Bridges, on July 28th, 1872.

In the genus *Medeterus*, my collection is still in a rather unsatisfactory state; I believe I possess at least a dozen species, but many of them in only one or two specimens, or in only one sex. I intend, therefore, to wait for more material before introducing doubtful, or describing new, species; in the meantime I can clearly add:—

MEDETERUS FLAVIPES, Mg.

A south European species, extending from Spain to Asia Minor, and yet, strange to say, tolerably common on posts and wooden buildings about Upware, in company with *M. diadema*, L. It is smaller than that species, with quite yellow legs and a white epistoma. Both species were common, close to the house where I stopped, last July, and I soon learned to distinguish them at a distance of several yards, although I overlooked the first specimens of *flavipes* until they were killed and pinned. There is one specimen correctly named in the British collection in the British Museum, but two specimens with it belong to the genus *Psilopus*.

XANTHOCHLORUS BICOLORELLUS, Zett.

I caught one male of this species at Plashett Park, near Lewes, unfortunately in rather bad condition, so that I cannot satisfactorily decide the doubt as to this species belonging to the genus *Xanthochlorus*.

PSILOPUS LÆTUS, Mg.

A male from Fawley, June 20th, 1875, is brilliant green, slightly smaller and thinner than *P. longulus*, Fall., frons brilliant green, face white; the middle tibiae and basal joints of middle tarsi beautifully fringed with rather short thin bristles; the basal joint of the hind tarsi equal in length with the second joint; the alulae yellow-haired, and the genitalia rather concealed. Meigen, in his seventh volume, described this species from a female, and it seems never to have been met with since. I caught a female some years ago; but, as the specimen is abroad at present, I do not know the locality.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

(DELTOCEPHALIDÆ: concluded from p. 244).

Thorax—pronotum yellowish-white, with five more or less distinct white longitudinal lines. *Elytra* pale, almost transparent; nerves white; apical areas frequently margined with brown; apex of the ante-apical area adjoining the inner apical one with a dark brown spot. *Tibiæ*: 3rd pair, inner margin generally black.

Length, $1\frac{1}{2}$ line.

10. PUNCTUM, Flor.

Easily distinguished from all the other British species by the solitary brown spot on the elytra.

The only specimens I have seen are those referred to by the Rev. T. A. Marshall, taken at Milford Haven.

SECTION B.

Ocellated species.

More or less lurid yellow. *Elytra* about as long as the abdomen, nerves very pale yellowish-white or white; anterior marginal nerve at the apex of the costal area and the ante-apical area with a brown margin.

Head—crown with a short, oblique, black streak on each side of the apex, and a more or less distinct reddish or orange triangular patch near the anterior margin of the eyes. *Face* more or less dark brown, with six to eight transverse yellow lines on each side, frequently appearing only as commas next the middle. *Cheeks* and *loræ* yellow, the latter margined with brown.

Thorax—pronotum brownish-yellow. *Scutellum* yellowish-white. *Elytra* about as long as the abdomen, pale lurid yellow; nerves very pale yellowish-white or white; marginal nerve at the apex of the costal area and the ante-apical area with a brown margin; nerves of the apical areas margined with brown, broadest exteriorly; discoidal and ante-apical areas narrowly and irregularly margined with brown, in some instances obsolete. *Legs* pale yellow. *Thighs*: 1st pair generally black at the base, and with a half-band or two spots of the same color in the middle; 3rd pair with a black streak along the upper margin. *Tibiæ*: 3rd pair with a black longitudinal line interiorly; apex black. *Tarsi*: 3rd pair black; 1st joint basal half yellow.

Length, $1\frac{1}{2}$ line.

11. FALLENI, Fieb.

I can perceive no difference between this species and *D. paleaceus*, J. Sahlberg, judging from the insects sent to that author for determination, and returned by him with the above names attached; as on examination the genitalia in both cases were identical, and agree admirably with Fieber's figures in the Verh. z.-b. Ges. Wien, xix, 210, 24.

Very pale ochreous-white or sometimes with a faint fuscous shade. *Elytra* with four or five spots and two streaks on each elytron.

Head—*crown* frequently pale brownish-yellow, with a short, slightly curved, brown streak on each side of the apex, two triangular spots in a line with the anterior margin of the eyes, and two short oblique streaks near the posterior margin, these characters are more or less obsolete in different individuals. *Face* brown, with a whitish or white central, longitudinal streak unequal in breadth; apical one-third whitish or white; sides with about four transverse white lines.

Thorax—*pronotum* pale, sometimes with four longitudinal yellowish lines. *Scutellum* sometimes with a dark fuscous triangular spot at each basal angle. *Elytra* very pale ochreous-white or sometimes with a fuscous shade; nerves pearl-white. *Clavus*: inner margin between the 1st and central nerve, and between the latter and the apex, with a black streak; space between the anal nerve and the suture at the base white, followed by an oblong black patch. *Corium*: central area, with a round black spot at the base; central apical area and the anteapical one in a line with it, more or less black; apex of the discoidal area with a black patch; not unfrequently these black characters fill the areas, which are then separated only by the white nerves which have a cruciform appearance. *Legs* pale. *Tarsi*: 3rd pair, apex of 2nd and 3rd joints fuscous. Length, $1\frac{1}{2}$ —2 lines.

12. *SABULICOLA*, Curt.

Although the characters on the elytra are very variable, the forms which appear to be most common have five black spots and two streaks on each elytron, thus approaching some of the varieties of *D. striatus*, with which, however, it can never be confounded by the difference in the genitalia in both sexes.

A common species on sandy places on the sea coast from July to November.

Greyish-testaceous. *Elytra*: nerves of the two inner ante-apical and two inner apical areas narrowly margined with black; central apical area black. Sometimes, with the exception of the last, the whole of the characters are obsolete.

Head—*crown* in ordinary types, with characters similar to those on *D. sabulicola*. *Face* brown, lower half with a pale longitudinal central line, and six or seven transverse lines on each side.

Thorax—*pronotum* greyish-testaceous. *Scutellum* with two black punctures above the transverse channel and generally a brown triangular spot at each basal angle. *Elytra* greyish or whitish; nerves white. *Clavus*: characters almost as in *D. sabulicola*. *Corium*: nerves of the two inner anteapical and two inner apical areas narrowly margined with black; central apical area black, sometimes, with the exception of the last, the whole of the characters are obsolete, or the whole of the areas are suffused with black, leaving the costal and ante-apical area immediately below it *always* pale. In the last case the crown has two longitudinal black lines and the pronotum four. Length, $1\frac{1}{4}$ — $1\frac{1}{2}$ line.

13. *STRIATUS*, Lin.

A somewhat smaller and much more common species than *D. sabulicola*, to which some of the forms bear a great resemblance, but the different general colour, and the want of the white cruciform characters formed by the transverse nerves of the corium of the last named species, will at once point out their distinctness.

On the continent, there is a species described by Fieber under the name of *D. Linnæi*, which might be mistaken for *D. striatus*, and although I have not met with it amongst the number of specimens I have examined, it is worth while to examine all those supposed to represent the insect now described. The posterior margin of the last abdominal segment of the ♀ of *D. Linnæi* is ~ shaped, while in *D. striatus* it is very faintly concave.

Yellow, reddish, or brownish-yellow. *Elytra* longer or shorter than the abdomen; areas more or less margined with black; nerves white.

Head—*crown* down the centre a little longer than the width across the anterior margin of the eyes; on each side of the apex a small brown or black triangular spot, and before the anterior margin of the eyes a transverse, somewhat concave, brown or black band. *Face* brown or black, with 5-6 transverse, fine, whitish lines on each side, slightly thickened internally. *Clypeus* yellow, with one or two brown or black lines down the middle. *Cheeks* and *loræ* yellow, the latter margined with dark brown.

Elytra longer or shorter than the abdomen, yellow or reddish or brownish-yellow; nerves white; areas more or less margined with black. *Legs* as in *D. Fallénii*.

Abdomen: ♂, beneath black, last segment broadly yellowish in the middle; connexivum with a triangular yellow spot on each segment; genital valve black, margin yellow; apex somewhat obtuse; plates black, an irregular patch at the base, and the margin narrowly yellow; hypopygial lobes thickly set with stout brownish hairs; ♀, beneath yellow; 2-3 basal segments black in the middle; posterior margin of the last segment with a slight notch in the centre margined with black.

Length, 1½ line.

14. SOCIALIS, Flor.

As a rule, the brachypterous form is always pale, and with almost only the apical areas margined as in *D. Fallénii*, while in the macrop-terous form all the areas are more or less broadly margined with black, thereby causing the nerves to appear much whiter than usual. *D. onustus*, Fieb., and *quadrivittatus*, Marshall, are both referable here.

Yellowish-brown. *Crown* with a curved black line on each side of the apex, as also a spot nearer to the eyes, and a faint, transverse, broad, slightly curved, brown band in a line with the anterior margin

of the eyes. *Elytra* yellowish-brown; nerves white; all the areas margined with black; anterior margin with two white spots, one at the base, the other at the apex of the first apical area.

Head—*crown* yellowish-white, length down the centre about equal to the width across the anterior margin of the eyes; on each side of the apex a curved black line, and about midway between its outer extremity and the eyes, a black spot. *Face* black, on each side 5-7 fine transverse yellow lines, those on the frons somewhat thickened at their inner extremity. *Clypeus* yellow, with a broad, brown patch down the middle. *Cheeks* and *loræ* yellow, the latter margined with brown.

Thorax—*pronotum* yellowish or slightly ferruginous, palest in front of the transverse channel, at the extremities of which is a more or less distinct oblong dark streak. *Scutellum* yellowish or slightly ferruginous. *Elytra* yellowish-brown, shining, as long as the abdomen; nerves white, stout; all the areas margined with black; base and apex of the 1st apical area on the anterior margin with a white spot; exterior margin of all the apical areas broadly fuscous-black. *Legs* yellow; *thighs*: 1st and 2nd pairs with two black rings; 3rd with a black line along the upper margin, and a broad black streak along the upper and under-sides, not reaching the apex. *Tibiæ* yellow; 1st and 2nd pairs with four or five black spots on the anterior margin; 3rd, broadly black internally; apex narrowly black; spines yellow, set in black punctures. *Tarsi*: 3rd pair black, 1st joint at the base yellow.

Abdomen: ♀, beneath black, last segment yellowish or brownish-yellow, posterior margin brown; centre with a small semi-oval incision, sides concave.

Length, $1\frac{1}{4}$ line.

15. OCULATUS, J. Sahlb.

The present species bears a great resemblance to the *onustus* form of *D. socialis*, but the areas are more regularly margined, and the posterior margin of the last abdominal segment beneath of the ♀ of an entirely different shape. It was sent to Dr. J. Sahlberg, with some others, and returned by him with the above name attached. A single ♀ in the collection of Mr. Douglas.

Testaceous. *Elytra* as long as the abdomen; nerves for the most part white. *Clavus*: between the suture and the adjoining nerve transversely divided into 5-6 small areas, all of which are more or less margined with black.

Head—*crown* yellowish-white, about as long down the centre as the breadth across the eyes; on each side of the apex a short brown or black streak, frequently triangular in shape; before the eyes a more or less distinct transverse brown streak frequently divided in the middle, so that the intervening spaces form a white cross. *Face* black, dull, with 4-5 transverse yellow lines on each side, sometimes almost obliterated, in the centre a large irregular yellow spot; apical margin frequently yellow. *Clypeus* black with a yellow margin, or yellow with a more or less broad black streak down the middle. *Cheeks* yellow, margin next the eyes black; *loræ* yellow, margined with black.

Thorax—*pronotum* and *scutellum* yellowish-white, the former with from 3-5 more or less distinct whitish longitudinal lines. *Elytra* testaceous, as long as the abdomen; nerves for the most part white. *Clavus*: between the suture and the adjoining nerve transversely divided into 5-6 small areas, all of which are more or less margined with black. *Corium*: central ante-apical area divided transversely by a nerve: upper portion somewhat oval, more or less broadly black, especially along the outer margin; apical areas and those adjoining margined with black, the former very broadly exteriorly; costal area at its apex and the area immediately below it with a black line along the anterior margin. *Legs* black; *thighs*: apex of all the pairs yellow. *Tibiae* black, or sometimes the 1st pair yellow; 2nd and 3rd at the base yellow, sometimes the anterior margin yellow with black punctures, in which are set the stout yellow spines. *Abdomen*: ♂ and ♀, beneath, black, dull; posterior margin of the last abdominal segment of the ♀ with a small square projection in the middle.

Length, $1\frac{1}{2}$ — $1\frac{3}{4}$ line.

16. OCELLARIS, Fall.

The division of the portion of the clavus into small areas, and the always conspicuous dark area in the middle of the corium, render this species easy of detection.

Extremely abundant everywhere.

Brownish or brownish-yellow. *Elytra* longer or shorter than the abdomen, disc commonly with two large irregular dark brown or black patches placed behind each other, and separated by a white transverse nerve.

Head—*crown* brownish-yellow, somewhat convex, length down the centre about three-quarters of the width across the anterior margin of the eyes; on each side of the apex a small black triangular spot, and more interiorly a second prolonged into a line, terminating at the anterior margin of the eyes; in different individuals these characters are more or less modified. *Face* black, with from 3-5 short, transverse, ferruginous lines on each side. *Clypeus*, *cheeks*, and *loræ* black.

Thorax—*pronotum* brown, anteriorly yellowish, and with a more or less distinct, pale, central, longitudinal line. *Scutellum* brownish-yellow. *Elytra* longer or shorter than the abdomen, pale brownish-yellow; nerves fine, white. *Clavus* more or less pale or dark brown, or sometimes blackish; nerves white. *Corium*: anterior margin except the base dark brown or blackish; disc in macropterous forms with two large irregular dark brown or black patches, each composed of 4-5 longitudinal lines of unequal length, and separated by a white transverse nerve; apical areas fuscous. *Legs* black; *thighs*: apex of all the pairs yellow. *Tibiae*: 1st and 2nd pairs yellowish or brownish; anterior margin of the 2nd, or frequently both, spotted with black; 3rd black, base narrowly yellow; spines brownish-yellow.

Abdomen black; posterior margin of the last abdominal segment of the ♀ beneath, in the centre with a small semi-circular projection, and the sides convex.

Length, 1 line.

17. FULICARIS, Fall.

Easily recognised by its smudgy black-lead appearance, caused by the colour shining through the elytra from the black abdomen, and the two more or less distinct patches on the elytra.

Exceedingly common from June to October.

Pale testaceous. *Elytra* longer than the abdomen, nerves white; in a line with the apex of the clavus a more or less distinct, broad, white, transverse band terminating at the claval suture; disc, almost in the middle with a black spot; anterior margin above and below the white band with a black patch, the lower one always largest.

Head—*crown* testaceous, convex; anterior margin with three black spots on each side of the centre, one or other of them frequently united; a little more interiorly, two semi-circular black lines, and adjoining the posterior margin of each eye two black spots; frequently these characters are reddish-brown, and more or less obliterated. *Face* black, with or without a yellow central longitudinal line; on each side about four transverse yellow lines; apical margin yellow. *Clypeus* yellow, broadly black down the middle. *Cheeks* brown; *loræ* yellow, margins black. *Antennæ*: 1st joint white, 2nd black; *setæ* brown.

Thorax—*pronotum* somewhat greyish-testaceous, with two black spots on each, placed transversely, and in a line with the posterior margin of the eyes. *Scutellum* pale testaceous, with two small black punctures above the transverse channel; basal angles with a red or orange-red triangular spot. *Elytra* longer than the abdomen; nerves white; in a line with the apex of the clavus a more or less distinct, broad, white, transverse band, terminating at the claval suture; disc almost in the middle with a black spot; anterior margin above and below the white band with a black patch, the lower one always largest and conspicuous; apical areas fuscous. *Legs* yellowish; *thighs*: 1st and 2nd pairs at the base broadly black, beyond the middle a narrow black ring, and at the apex generally a black spot; 3rd yellowish, lower margin black; inner side at the apex with a black spot. *Tibiæ* yellowish; 2nd pair at the base with a black spot interiorly; 3rd, down the inner margin black; spines yellowish set in black punctures.

Abdomen black; ♀, beneath; 3rd, 4th, and 5th segments with a yellow triangle on each side; last segment yellow, posterior margin slightly concave.

Length, $1\frac{1}{4}$ line.

18. ARGUS, Marshall.

Slightly larger, always clearer, and the characters on the elytra more sharply defined than in *D. pulicaris*, from which also it differs in having a white band on the corium and the posterior margin of the last abdominal segment of the ♀ of an entirely different shape. Fieber has described a species (*D. fasciatus*) which must be extremely like the above, and it will be well to examine the markings on the crown, and the shape of the posterior margin of the last segment of the abdomen of females.

Seemingly not uncommon, as I have met with specimens in nearly all the collections I have examined.

Description of the larva, &c., of Botys lancealis.—Since the publication of that interesting paper, “In memoriam Carl von Heyden,” in The Entomologists’ Annual for 1867, I had cherished the hope of obtaining the larva of *lancealis*, and this hope has at length been fulfilled, thanks to the kindness of Dr. J. H. Wood, of Tarrington, who succeeded in detecting it in Herefordshire, and kindly sent me two young examples on the 13th August, and three more (full-grown) on the 1st September, 1874.

Not having seen any description of this larva, it has occurred to me to give one, together with some account of the behaviour of the few individuals I had in captivity.

Of the first two larvæ I received, one had been accidentally crushed, but its companion arrived in a lively condition, wriggling and leaping, both forwards and backwards equally well, whenever disturbed from its web spun amongst the leaves of the *Eupatorium cannabinum*.

The youngest larvæ was about five-eighths of an inch long, and at this stage of its growth was rather uniform in size, though in other respects showing the characteristics of a *Pyralis*; its pale drab head spotted and freckled with darkish-brown, the back and upper sides of the body bluish-green, the thoracic segments rather yellowish-green, a whitish hair-like spiracular line, the belly and legs pale whitish-green; the second segment as shining as the head, and minutely speckled with black, the dorsal vessel faintly showing as a rather darker green pulsating stripe; the segmental folds greenish-white, the tubercular warty eminences, though of the ground colour, yet glistening with a pearly lustre; the rest of the skin at this time generally without gloss, but so thin as to be semi-transparent.

When fresh food was supplied to this larva, it soon spun a new web for its dwelling under the end of a leaf, folding it down, and remaining quiet for some time; afterwards often coming out at intervals to feed on the neighbouring leaves.

On one occasion of changing the food I watched the larva spin another web; it first took up its position on the under-side of a leaf, across the midrib, about an inch from the tip, and began operations by fixing a thread of silk on one side of the leaf, then stretching itself round, it carried over the thread and fixed it on the opposite side, and so it continued regularly from one side to the other, the fore-part of its body at each movement describing a segment of a circle;—occasionally it paused a moment to advance a step, and then began spinning again, and so on until satisfied that it had spun enough; then it changed its position, and laid itself to rest along the midrib of the leaf: this web was more than half as long again as the larvæ itself, and about half-an-inch in width, excepting just at the ends which were a little less, and both open; the silk of which it was spun being rather fine in texture, and whitish. After a short rest the larva crept a little way out of the web, and began nibbling the edge of the leaf it had chosen to reside under; at this moment, in order to have a clearer view, I cautiously ventured to turn aside the tip of another leaf adjacent,—but so timorous was the larva that it sprang instantly backwards into its web, where in alarm it remained for a long time with its length much contracted. In course of a few hours after this it had firmly fastened its leaf to two or three other leaves close by, and I did not disturb it again until the 18th of the month, when I found it had just moulted, and not only increased somewhat its size, but assumed a different dress, together with the usual proportions that characterise the genus. On the 23rd I saw it was full-grown, and took the following description:—

Length seven-eighths of an inch, the body tapering at each end, and thickest in the middle, especially when viewed sideways; the head small and rather flattened, the segments plump and well defined on the back and sides, and more particularly on the belly where they are deeply cut, and very tumid at the setting on of all the legs, especially the ventral ones, which are rather long, slender, and spreading a little at their hooked extremities, the anal pair extending backwards and a little outwards; the anterior legs very well developed. In colour the glossy head is light drab, speckled with dark brown, and having the papillæ tipped with brown; the second segment, also glossy, is green above, with the boundary of a plate defined on either side by a series of four black dots decreasing in size from the front; on the rest of the back a dark green dorsal stripe, which is attenuated a little towards each end, its course relieved on either side by a broad stripe of opaque pearly greyish-white, followed by a broader semi-transparent green stripe, distinct without hardness, margined below by a thread-like opaque whitish line which thickens as it approaches each segmental division; on this line are situated the small circular black spiracles; all beneath, including the belly and legs, have a pale watery tint of greenish; the tubercular warts have each a fine silky hair; the whole skin is tense, shining, and more or less translucent.

On the 25th August this larva ceased to feed, left the plant, and spun a web in a corner at the top of its cage, having by degrees become of a beautiful opaque rose-pink colour on the back, and greenish-flesh colour on the belly, destitute of any line or stripe, the head alone remaining unaltered in colour and markings. By the 31st I found the web completed; it was of triangular shape composed of whitish silk enclosing a space an inch in length; within was a hammock-like cocoon of finer white silk, and in this lay the larva. Its colouring again changed to an uniform flesh tint; and from this time it rested quiescent, without any further change in its appearance, until the last week in April, 1875, when I saw its position was different, and it seemed a little shorter and thicker than before; on the 3rd May I found it had pupated.

This pupa was three-eighths of an inch in length, moderately slender in form, with the wing and antenna cases long, the abdominal tip terminating with four or five minute bristles converging at their extremities, which were entangled in the silk of the cocoon, the old larval skin lying behind them; the colour of the pupa was a very pale brown, with shining surface.

Of the three other full-grown larvæ before mentioned, it will suffice to say that their details were just as I have already described; the variations were simply in the depth of the colouring: one much darker than the others, in which the light stripes of the back were greenish-grey; the other parts proportionally darker: another was much paler, the stripes of the back being ivory-white: their habits also were similar. Two of them reached the roseate stage on the 9th September, the 3rd on the 12th.

One spun its cocoon on the straight upper edge of its cage, against the gauze top, to which it partly adhered; this was exteriorly much of a hammock shape; this larva pupated May 6th, 1875. The two others choose to spin themselves up under two or three leaves, which they securely fastened to the side and bottom of their respective cages, hidden from observation.

The earliest moth to appear was a male on May 29th from the first larva whose progress I have traced; from the second pupa a female emerged on the 31st, and on the 7th June a male: the remaining larva died from mildew attacking it and its leafy hibernaculum.—WM. BUCKLER, Emsworth: *January 28th, 1876.*

A supposed new British species of Leucania.—I have to announce the capture of what I hope will turn out to be a new species of *Leucania*. It was taken by myself last autumn near the river Bure, between Yarmouth and Horning, brought home and set by my daughter. My attention was not drawn to it for two or three months, when I noticed its singular appearance, but professional engagements, which prevent my attending to entomology during the winter months, compelled me to put it on one side with several other doubtful moths till a month ago, when a friend noticed its peculiarity, and we went over the late Mr. Doubleday's collection. There we found nothing, either among the British or European species, to compare with my moth, the nearest approach being *L. Loreyi*. When its unique character is more fully determined, I will forward a detailed description.—W. BATTERSHELL GILL, M.D., 9, Cambridge Terrace, Regent's Park, N.W.

Obituary.

Thomas Wilkinson. This well-known entomologist died at his residence at Scarborough (we believe from the rupture of a blood-vessel) on the 13th April, at the age of 58. Although an uneducated man, and of humble origin, he made for himself a conspicuous position in the annals of British entomology; and those among our readers who can carry their memory back to the days of the "Intelligencer" and the "Manual of British Butterflies and Moths," will be able to appreciate the force of this remark. They will remember with what ardour he entered into the investigation of the life-history of the *Micro-Lepidoptera*, and the extraordinary number of valuable discoveries made by him in this branch of entomology, his natural quickness of perception enabling him to follow up the slightest clue, and he rarely failed to trace out the whole history of any species that occurred in his neighbourhood. In this, he was aided by a strong constitution and great powers of endurance, which enabled him to make long and arduous excursions under the fatigues of which most men would have soon succumbed. Having, to a considerable extent, exhausted the subject of *Micro-Lepidoptera* in the vicinity of Scarborough, and his circumstances not permitting of the exploration of new fields in this branch, he latterly turned his attention to *Coleoptera* and *Hemiptera*, and in both made important captures, including additions to our Fauna and to science in the latter Order. The care and skill with which his specimens were prepared are patent to all who have seen his collections; his British *Micro-Lepidoptera* are hardly to be surpassed either for completeness or condition. Those who knew him personally, saw in him a quiet unassuming investigator of Nature's secrets, utterly disinterested in every thing he undertook, and characteristically free from any of the petty jealousies that are too frequent among local naturalists.

ENTOMOLOGICAL SOCIETY OF LONDON: *5th April, 1876.*—Professor WESTWOOD, President, in the Chair.

Messrs. J. W. Douglas, E. C. Rye, F.Z.S., Charles Fenn, George Lewis, J.

Dunning Kay, and W. C. Copperthwaite, were elected Ordinary Members; and Mr. B. A. Bower, Jun., was elected a Subscriber.

Mr. F. Bond exhibited an example of *Xylina lambda* taken near Erith in September last by Mr. W. Marshall, being the fifth known instance of the occurrence of the species in Britain. Also *Ebulea stachydalis*, taken by himself at Kingsbury, Middlesex, in June, 1862.

Mr. Champion exhibited specimens of *Ægialia rufa* taken by Mr. Sidebotham near Southport: and he brought examples of *Psammobius sulcicollis* for distribution.

The President made some observations respecting the habits of the common gnat in continuation of his remarks at the meeting for November 4th, 1872 (*vide* Ent. M. M., ix, p. 167). Large numbers of females had again appeared in his house at Oxford during the first warm days of spring, and he suspected that they had hibernated in the house. They had commenced their usual practices, and some of those killed were full of blood. He also remarked that Dr. Leconte's valuable collection of *Coleoptera* had been presented to the University at Cambridge, Massachusetts.

Sir S. S. Saunders exhibited living examples of *Stylops Kirbii* found a day or two previously at Hampstead, three having been taken on the wing, in the forenoon. He had found eighteen males in all: one *Andrena* contained three undeveloped males. Mr. Enock followed up this exhibition by an account of his own captures of male *Stylops* at the same place, and nearly at the same time. He had captured ten on the wing: one *Andrena* contained four individuals. Males were developed from a living *Andrena* in a pill box during the meeting.

The Rev. A. E. Eaton announced that he had in preparation a Supplement to his "Monograph on the Ephemeridæ," chiefly from the materials in the collections of Mr. McLachlan and Mr. H. Albarda. He requested help from any one possessing insects of this family. It appeared probable that in some genera (*ex. gr.* *Campsurus*) the legs were shed with the sub-imaginal pellicle, thus accounting for the nearly legless condition of the imago.

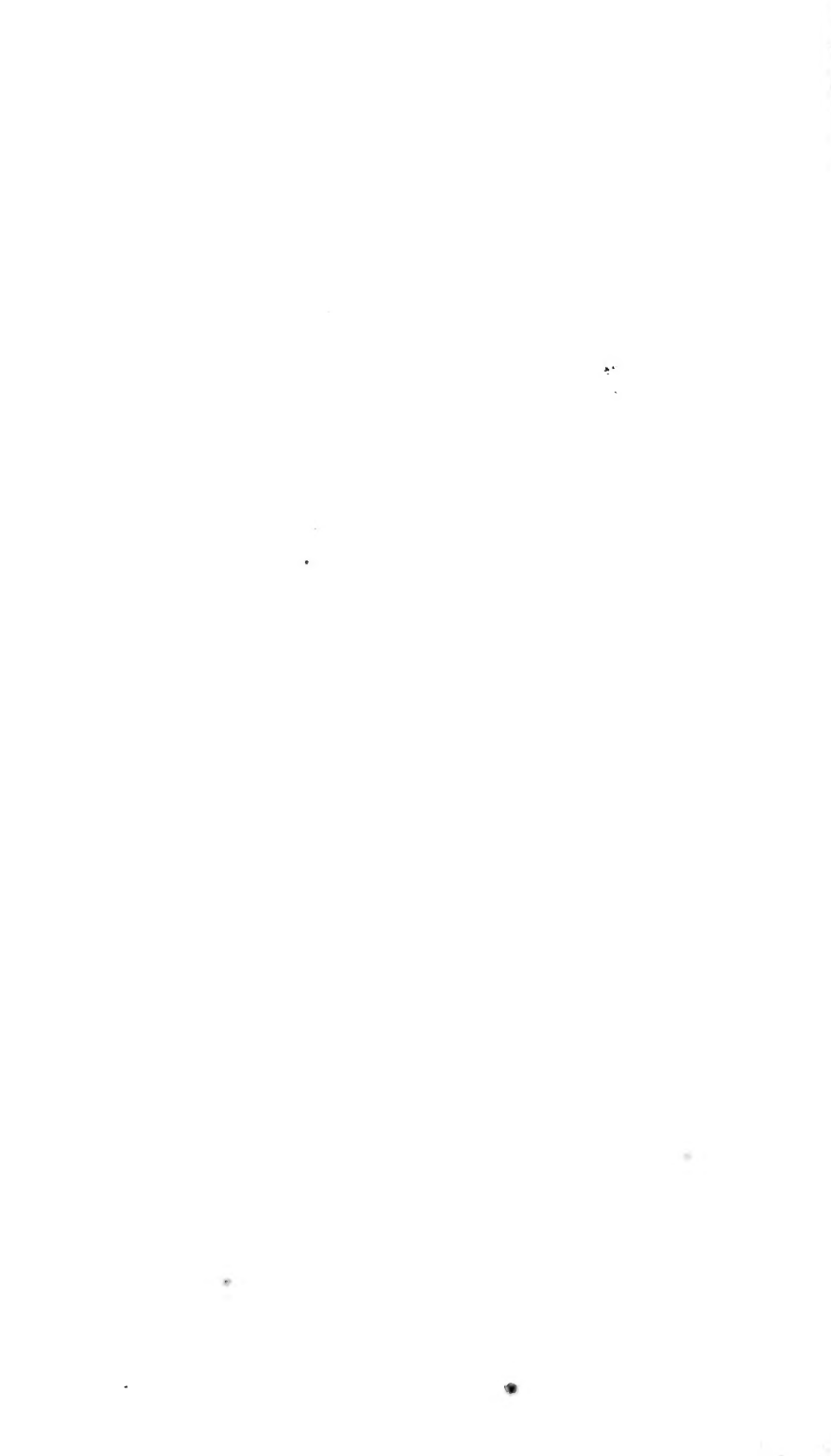
Mr. Smith made some remarks on the distribution of some genera of Hymenopterous insects from New Zealand, according to a collection placed in his hands by Mr. C. M. Wakefield, in which he was followed by Mr. McLachlan, who remarked on the gradual extinction of the endemic Fauna of New Zealand, although introduced forms thrive wonderfully.

The Rev. R. P. Murray stated that he was preparing a list of Japanese Butterflies, and would be grateful for information, or the loan of specimens, in connection therewith.

Mr. McLachlan exhibited a series of *Anomalopteryx Chauviniana*, Stein, from Silesia, given to him by the discoverer of the species—Fraulein Marie von Chauvin of Freiburg. This singular Trichopterous insect pertained to the family *Limnophilidæ*, and was remarkable for the lanceolate anterior, and abbreviated posterior wings of the ♂, those of the ♀ being normal, excepting that the posterior wings were smaller than usual. Also apterous females of *Acentropus niveus* received from Mr. Ritsema of Leyden (*vide ante* p. 257). Further, a microscopic slide with a full-grown female example of *Phylloxera vastatrix* of the root form. This he had recently obtained, with many others, from a vineyard near London, which was terribly infested with the insect.







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